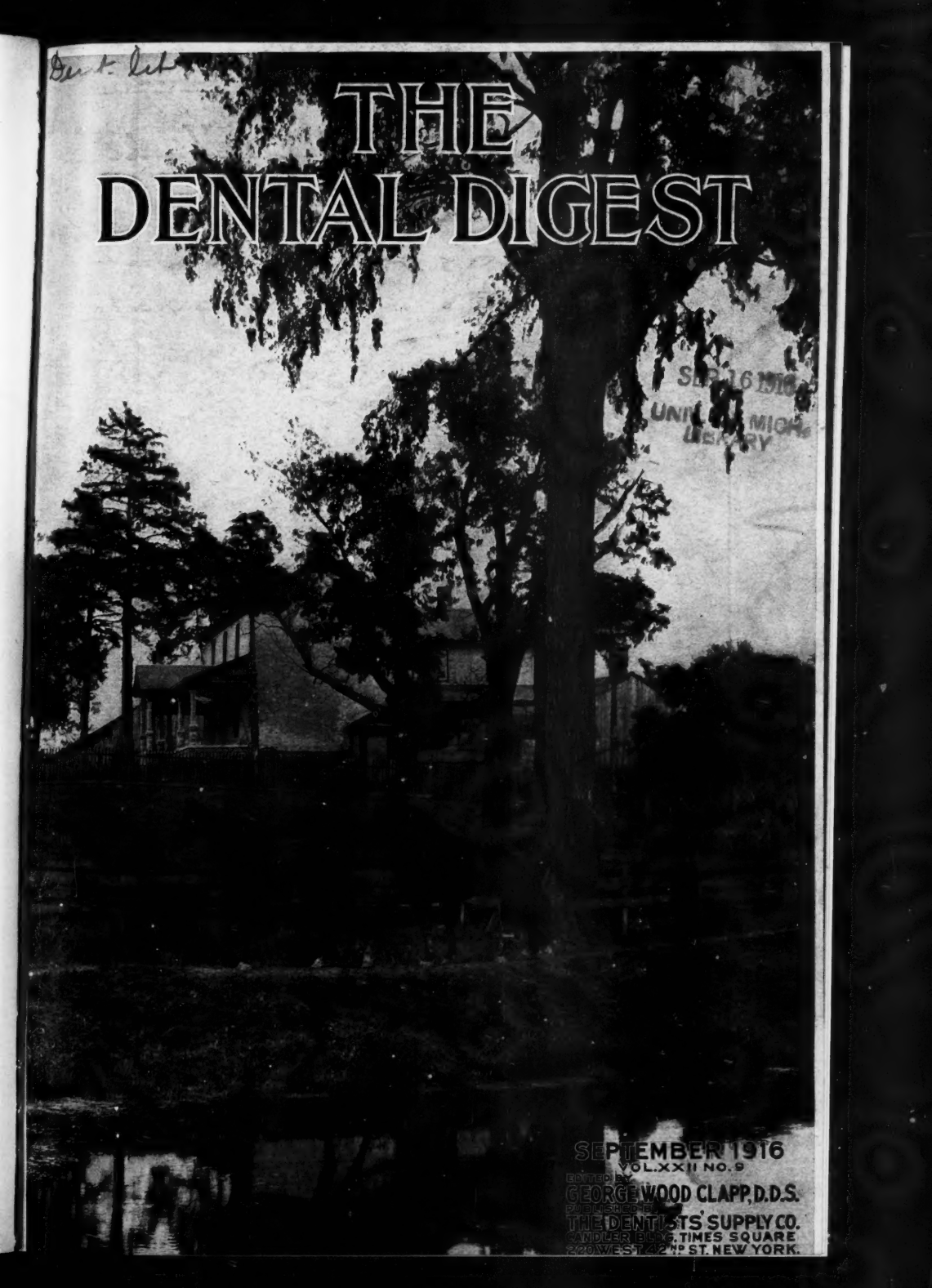

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GEORGE WOOD CLAPP, D.D.S., Editor

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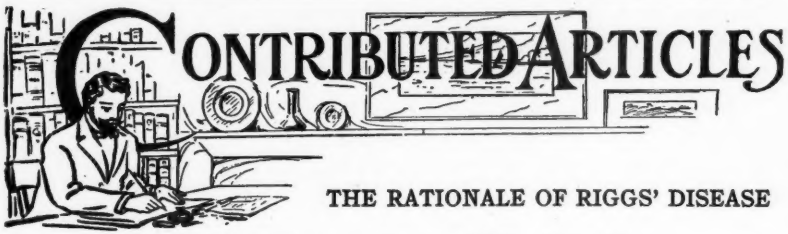

THE RATIONALE OF RIGGS' DISEASE

BY MARION HOWARD CAZIER, M.D., NEW YORK

The writer has devoted some years to the study of the causes and consequences of the disease known as Pyorrhoea Alveolaris. An extended series of cadavers has been the basis of the preliminary study. On this material, he has found the disease in its very insipiency, at the point of its beginning, long before the dentist is consulted and long before any study on the patient could lead to an understanding of the real condition.

It is only fair to say that the dental profession of America because of its very exceptional advancement since its organization, compels the admiration of mankind. The lesions of the human body and the laws which govern their repair, are *beyond dentistry* and the fact that the lesion may be adjacent to the tooth makes no difference. Moreover, if the dentist is to be able to treat the lesions intelligently and successfully, a knowledge of nature's requirements must be added to his other attainments. The author's reason for offering this contribution is that the rational understanding of the disease, together with rational treatment, is among the things most needed by mankind, and has never been made possible before.

In the study of the mouth under the name of "Interstitial Gingivitis," Talbot, as well as other authors, point out that the alveolar process is a

transitory structure, that it undergoes senile dissolution far in advance of any other structure in the body. Notwithstanding that this has been known for generations, we have paid only as much attention to it as we do to any other phenomenon which is entirely beyond human control. Furthermore, with an adequate knowledge of the fact that the alveolar process is undergoing necrosis and is being absorbed, a great deal is written and a great deal is said to admonish us that the recession of the gums is to be prevented. This is tantamount to admonishing the gardener to prevent a vine from falling to the ground when the trellis has rotted away.

Much has also been said about the other symptoms of the disease, which are characterized by sinuses leading from the natural surface down to the diseased bone, usually called "pockets" and much stress has been laid upon the fact that this sinus is sometimes infected. Some have contended that to subdue the infection "would cure the disease," others contend that to subdue the infection, plus the closure of the sinus, which may be brought about by extraction of the tooth, amounts to "curing" the disease. To these suggestions the author offers the counter suggestion that the disease is the destructive absorption of the bony support of the teeth, that it is entirely preventable and that any treatment which does not contemplate the revitalization of this tissue and which does not completely prevent its destruction is not the best treatment which is now obtainable.

And furthermore the author suggests that any treatment of this portion of the body instituted for the purpose of eliminating the disease, and bringing about recovery should have for its purpose the conservation of live tissue and the sacrifice only of the dead.

The views expressed by the authors and teachers concerning the pathology of this disease are singularly at variance with the facts. Senile dissolution is inconsistent with inflammation, but the teaching is that they are both present in the tissue at the same time. It would be equally as rational to assume that a conflagration might be precipitated by adding a torch to a snow bank. Dead or dying tissue does not inflame and cannot be made to inflame until it is first revitalized and brought up to the normal state of vital resistance. It is an undisputed fact, that the alveolar process undergoes molecular death sometimes early in life but almost universally beginning before 40. Then the idea that inflammation of this structure constitutes the pathological change must be absolutely abandoned, and the fact must be given its rightful consideration and this forces us to the realization that the change is degenerative, and not inflammatory, and so far below the normal condition do we find the parts that the phenomenon must be recognized as the opposite of the inflammatory,

which is ulcerative, the result of dying tissue cells. The bone breaks down primarily because of a lack of nutrition and when this occurs and the limy salts attach to the tooth, there is formed a deposit, and infection and ulceration may occur simultaneously. Yet the teaching has been that this deposit attaching to the tooth is precipitated out of the *blood serum* and is the *cause* of the lesion. A view more contrary to the actual facts is hard to imagine. In the first place an ulcerating surface is not the scene where blood serum is to be found; and furthermore when rational treatment has been applied in thousands of cases under the author's direction and the deposit disappears—the sinus being treated aseptically and the blood serum caused to pour into the lesion, no deposit of this character whatsoever is found thereafter, so that when serum is entirely excluded from the area the so-called serumal deposit appears, and when serum is supplied in abundance it is no longer deposited. It is, therefore, evident that this deposit is not derived from blood serum but is the result of the breaking down of the bone and is made up largely of the limy salts of this destructive condition, because when bone destruction is stopped the deposit is no longer formed. It is, therefore, exceedingly irrational to assume that it can be the cause of the lesion for it is proven to be a consequence.

The so-called surgical treatment of this disease is very largely, if not entirely, made up of certain procedures which have for their purpose the removal of this deposit and these procedures are advocated and practised as a *first* measure. It is an exceedingly unwise and ill advised measure of practice. It is one of the principles of good surgery that where live and dead tissue are intermingled that no operative procedure is justifiable until a *line of demarcation is established.* To do otherwise is to jeopardize the interests of the patient, to sacrifice live tissue which could otherwise be saved, and it frequently results in bringing about conditions which are worse than those sought to be relieved—adequate measures must be instituted to revitalize before we operate and then to nourish, and protect the parts from destruction, or relapse is the constant sequel of treatment.

The tissues in the mouth surrounding the lesions in this disease are nearly all inadequately nourished. This is because the arterial supply is deficient, and this is explained when we understand the mechanism of the arterial distribution to the alveolar process. The arteries are end organs as described by Talbot, they are permeating cancelous bony structure. The whole area, vessels and all, are structures which are developed after birth, and are comparable to additions to a castle or city, and must necessarily be supplied with requisite fluids, be this water or whatsoever. Without going further into the anatomical study, it must be evident to the reader that the blood supply to these structures is sure to be found in-

adequate if the general supply is being utilized or drawn upon in any excess, as it is in pregnancy and lactation, or the supply diminished as it is in acute diseases, the bone on the very distant extremities of the arterial distribution is the tissue which dies first for lack of adequate nutrition.

The treatment of this malady must be revolutionized if mankind is to be emancipated from its tremendously damaging consequences. These consequences are beyond the average understanding, because infection of the entire system is so exceedingly common as the result of its ravages. This has been very definitely proven by such men as Billings, Rosenow, and others, and the proof is so complete that it reiterates the slogan, "That the next step in preventive medicine must be taken by the dentist."

The treatment addressed to this disease must follow the rational indications or it will end in failure as is now so uniformly the case, and the rational indications are to revitalize this structure, and the practitioner who accomplishes this in the most rational and economical fashion is the most successful in the treatment of his patients and relapses are prevented if the patient will but use ordinary care.

Nutrition of sub-vital parts is now accomplished by inducing active hyperemia. This has been very well described by Professor Bier of the University of Bohn. He applies it to the different areas of the body, particularly stiffened joints. Its application to the mouth and to these structures is an incident of the rational treatment of this disease which is of exceeding importance. Raising the vital index of these tissues to the normal is a preliminary to be insisted upon before any other local measures are to be thought of. By this means, we save a large amount of tissue, both pericemental and osseous, which would otherwise be sacrificed.

In the local treatment of the sinus no operative surgical measures should be thought of until the parts are stimulated by some active agent which will establish a line of demarcation by causing the live portion to swell and the dead portion to shrink. When this is accomplished, the operative procedure becomes exceedingly simple and the whole process and programme of treatment is so simplified and so enriched in its results that it makes possible the emancipation of the human race from Pyorrhea Alveolaris, one of the most damaging diseases which has afflicted mankind through all the centuries past.

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DO YOU

Clean your teeth and then expectorate in the washbowl?

Omit lunch to reduce weight and then overeat at dinner?

Go to the country for health and then sleep with your windows shut tight?—*Exchange.*

EXPANSION AND CONTRACTION IN PLASTER AND VULCANITE

By Stewart J. Spence, D.D.S., Chattanooga, Tenn.

(*Continued from August issue.*)

The softness, or compressibility, of plaster of Paris is doubtless the cause of as many misfits as expansion. When, after being on the lookout for it nearly twenty years, I found a way to prevent the expansion of plaster of Paris, I fondly thought that from thenceforth I should have naught but good sailing in the matter of adaptation. But alas, I was sorely disappointed. I had to commence again at the foot of the ladder. Fortunately I remembered that in some experiments I made in celluloid many years before, I had found that the plaster casts were crushed out of shape badly in all cases where the celluloid was moulded at a low heat, and it occurred to me that possibly rubber, though so much softer than celluloid, might act similarly on casts, though to a lesser degree. I made an experiment to test this, and was surprised at the result. The compression of the plaster by the rubber was much greater than I had expected to find it; and on seeking for the cause it occurred to me that the rubber in a closing flask is *not* soft, but greatly increased in density and hardness by the compression. To test the amount of its compression of the cast I poured plaster into a swaged aluminum plate, then invested same in flask, and on opening flask and removing the aluminum plate, put rubber in its stead and closed flask in boiling water. Then on opening the flask and removing the rubber from the cast, I placed the cast back in the plate and found that it had largely been compressed out of its original shape. This became more and more obvious as I cut away the cast gradually, beginning at its posterior palatal border, and thus saw where the compression had been greatest. I found that it was most compressed farthest from the borders, but that the greatest space was at a point not far from the border where an extra amount of rubber had been placed.

This experiment showed that plaster does not spread readily enough to avoid the evil of cast-compression. I set about trying to remedy this evil. I first thought it might be done by partially dissolving the rubber before closing the flask. I had noticed that a piece of rubber which dropped on some coal-oil on the work bench became softened thereby, and on trial in the flask I found that it permitted very easy closure of the flask; but, alas, on vulcanizing that rubber I found it was spoiled. I tried a number of solvents, from coal-oil to chloroform, but they all injured the vulcanite. When chloroform was given an hour or so to evaporate, this injury did not occur, but by that time the rubber was no longer soft.

It occurred to me that perhaps the rubber was not given time enough in the hot water to become well softened; and I tested this by investing a thermometer in the plaster investment, and found, with surprise, that it required about fifteen minutes to reach 212 degrees F. This proved that plaster is a poor conductor of heat. Of course, the rubber could not take up heat before the plaster in contact with it did so. I made some tests to determine the extent of compression at different points of time of the flask-closing, and found that nearly all of it occurs at about the last turn of the nut. This taught me that if the nuts turn with unusual resistance near the end of flask-closing, the flask should be opened and some rubber removed.

This last lesson may be of value to those who use plaster of Paris for casts, but I no longer depend on it for that purpose, for I found a way to make non-expanding plaster so hard that especial care in flask-closing is not needed. I had been obsessed with the belief that a thick-mixed plaster set no harder than one mixed of medium consistency. My immature experiments in the San Francisco days had seemed to show this, but now I thought I would again put it to the test, and to my surprise and delight I found that the thicker I could mix my plaster the harder it set. Testing its resistance to compression when thus thickly mixed, against that of plaster of Paris, by filling one section of a flask with the one plaster and the other section with the other plaster, then placing a round steel ball between them and then closing the flask, I found that the ball sank from three to eight times more into the plaster of Paris than into my plaster. My method of measuring the respective displacements of plaster was somewhat crude, but sufficiently accurate for my purpose. It consisted in filling the two holes with wax, then taking out the wax and rolling it into two equally thick ropes, then measuring these. Dr. Geo. H. Wilson has since made some very exact measurements of the resistance of various plasters, mine included, as well as their expansions, times of setting, etc., recording the same in his second edition of "Dental Prosthetics."

With a non-expanding and virtually non-compressible cast, I thought I had at last solved the problem of adaptation; but the end was not yet. I was still using plaster of Paris for investments, and the fits were not always ideal. Where could the fault be? Pondering over the subject, I remembered that I had read where Dr. G. B. Snow said that vulcanite contracts. By testing this, I found that a strip of vulcanite would contract, when perfectly free to do so, as much as one sixteenth of an inch in three inches when heated to 320 degrees F. This much at the first contraction, and more at a second and third similar heating, until about a twelfth-inch contraction was reached. Of course such great contraction

would ruin any plate; but as flasked rubber is not free to contract, being resisted by the investment, no such vast contraction occurs in actual practice. The question arose, "Does a plaster of Paris investment prevent all contraction?" A few experiments showed that it did not, and also that investments of plaster of Paris which were given only an hour or two to harden did not resist contraction nearly so well as those given all night. Experiments further showed that it is during the cooling that this contraction occurs, at which time the plaster investment has reached its softest state. If this contraction were equal all over the plate it would result merely in an all around smaller plate (which might be an advantage) but this cannot occur, because some parts of a plate are thicker and therefore stronger to contract than other parts, and also because the investing plaster is apt to be harder at some parts than others and therefore to grip the plate tighter at these parts. It seemed likely that this last happens at one side or other of the plate, for my tests showed that one wing of a plate will often be found drawn down, so as not to sit on the test cast at that side of the ridge while sitting all right on the other side. In my early days I had a case where the plate split asunder inside the vulcanizer with a loud snap, the crack running for about an inch along the median line from back to front, with one of the wings warped inwards about a quarter of an inch. The plaster investment of this case had been made of dental plaster, which sets softer than coarser plaster, and, as it was a hurry job, it had not been given time to set hard. It was almost mushy in the vicinity of the crack. This illustrates that warpage of plate may result from contraction of vulcanite.

When this warpage occurs, the plate is spoiled as regards fit, but it may sometimes be remedied by immersion in hot water. This has a tendency to restore a vulcanite or celluloid plate to the shape in which it was moulded. But, as heat also causes contraction, there is great danger of shrinking the plate too much, to prevent which the heating of it should be raised by gradual steps, and at each step the plate tried in the mouth. My experiments demonstrated that vulcanite contraction begins at 130 degrees F., but some very loose and over-large plates may be raised to 180 degrees F. or even 190 degrees F. before becoming too small. Thus misfitting plates can sometimes be made into good fits. A thermometer should be placed in the water with the plate.

It is well to apply this shrinking method to plates which come in to be refitted, especially thick plates, thus reducing their vertical thickness in advance.

This leads me to my last-discovered source of misfit, and its remedy. I failed to get a good adaptation in a plate which had great thickness of vulcanite over the ridges. This set me to wondering. It then occurred

to me that the shrinkage of vulcanite might be the evil-doer. This did not appeal to me at first, but when I reflected that vertical shrinkage (that is, contraction of the plate's thickness) is not restrained as much by the investment as it is a real shrinkage (that is, contraction of the plate's area), if indeed it is restrained at all, I became convinced that we have here a fruitful source of mal-adaptation. For as three inches of vulcanite will contract a sixteenth or twelfth of an inch, it follows that a half inch will contract about a ninetieth of an inch, which is quite an item when deducted from the thickness over the ridge and therefore added to that over the palatal dome. My first attempts at preventing this vertical shrinkage were crude indeed, consisting in drilling holes in the case, which, when filled with vulcanite, would hold the walls of vulcanite to the cast. The next method was the use of continuous gum teeth, the long and serrated roots of which would hold the vulcanite walls apart; which method gave way to serrated pieces of platinoid stuck into the rubber while packing, to answer the same purpose as the tooth roots. All these crude methods were supplanted by the final one, which consisted in using a non-contracting rubber to fill in the thick parts of plate. Having observed that weighted rubber shrank less than ordinary rubber, but still not enough to prevent all shrinkage, it occurred to me to mix more chips of metal with said weighted rubber until absolute non-contraction should be reached, in making which experiments I noticed that the smaller my chips and filings, the better the result, so that it occurred to me that perhaps some metal reduced to a powder might work best. The lightest metal being aluminum, I chose it, and mixed the powder known as aluminum bronze with rubber by dissolving the rubber in chloroform and kneading the powder into the rubber. A few tests showed that from twenty to twenty-five per cent. of the metal by weight, gave absolute non-expansion to rubber. On cutting open a large lump of vulcanite thus treated, I was delighted to find that the aluminum had also prevented porosity. A small quantity of this bronze mixed with black rubber gives the pretty "gold dust" appearance, but twenty per cent. mixed with red rubber gives a steel grey shade not so pretty; therefore it is desirable to wrap the aluminized rubber in a fold of the red rubber. While the addition of the metal of course weakens the vulcanite, as does any other ingredient, yet as this rubber is intended only for thick parts of the plate, this slight decrease of strength is of no value. Any dentist can easily prepare this non-contracting rubber for himself. The chloroform must be given an hour or two to evaporate before using, else the vulcanite will be porous. Here ended my discoveries in plaster and vulcanite.

CORRECT AND INCORRECT CUSPID RELATIONS

By Russell W. Tench, D.D.S., New York

The illustration on the left shows the incorrect articulating relations to which upper and lower artificial cuspids have usually been set. This has been due in part to the incorrect forms in the artificial cuspids obtainable prior to the advent of Trubyte teeth, partly to lack of appreciation of the importance of proper cuspid relations, and partly from lack of knowledge as to how artificial cuspids should be set.

This relation in articulation not only prevents the cuspids from exercising their function of stabilizing the dentures, but is a fruitful source of a dislodging contact of the dentures.

Fig. 1. Showing incorrect cuspid relations, as usually found in artificial dentures of the ordinary kind. The plates are unstable, and instead of being an aid to mastication, the cuspids, improperly formed and set, make it extremely difficult.

Fig. 2. Showing correct cuspid relations, which are easily secured in Trubyte dentures. The dentures are held in place, the jaw is guided into articulation so as to secure the greatest masticating efficiency, and the incisors are protected from breakage, if the lowers are not set to too great an underbite.

With the advent of correct forms of artificial cuspids of a proper appreciation of the function of the cuspids in stabilizing the dentures and correct methods of articulating cuspids, it is *not* difficult to obtain the relations shown in the picture on the right. This relation holds the dentures in place, guides the jaw in articulation so as to secure the greatest masticating efficiency in the bicuspids and molars, and protects the incisors from being broken by improper contact, if the lowers are not set to too deep an underbite.

These two pictures are from a patient in the laboratory in the Research Department of The Dentists' Supply Co. The one on the left shows the dentures the patient wore when she came; that on the right shows her Trubyte dentures. She learned to masticate better on the Trubyte dentures in two weeks than she could with the other dentures after two years' wear.

ACCURACY IN AMALGAM RESTORATIONS

By W. Goddard Sherman, D.D.S., Clermont, Fla.

It appears to be the consensus of opinion among the laity, that the function of an amalgam filling is primarily and finally to plug up the decayed cavity to prevent further decay, thus enabling them to retain that tooth longer than would otherwise be possible.

The majority of patients appreciate the value of gold work and are willing to pay higher prices for such, but few will pay a fair price for the best amalgam filling or restoration when indicated.

The time required for operation, together with the life of the filling with continued service, should be the basis of fees and not the filling material used as thought by many patients. If patients were thus informed, it would, in a short time lessen the number of kickers and mean increased fees for the operator.

To my mind, one of three reasons is the cause of so many amalgam fillings and restorations failing to accomplish the intended purpose, the majority lacking in the most important and vital function—occlusion. These reasons are:

1. The operator does not know the anatomical form of the tooth to be restored.

2. The operator knows the anatomical form of the tooth to be restored, but does not know how to restore it to a condition of highest functioning power.

3. The operator knows the anatomical form of the tooth to be restored and knows of a method to restore it to a condition of highest functioning power, but fails to do so because a low fee does not permit him to devote the necessary amount of time to that operation.

I believe that more than 75 per cent. of the amalgam restorations are inserted by "guess-work." By "guess-work" I mean that the cavity is filled with amalgam, trimmed neatly and made smooth by passing over it a pellet of cotton or burnished with an instrument. The patient is then instructed to close the mouth, after which the operator inspects the filling to see if it is "too full."

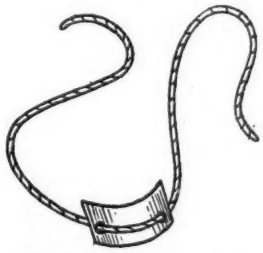
This sort of technic may result in a beautiful filling as regards the margins and a smooth, flat, polished occlusal surface, but has the function of the tooth been restored? If such filling is *not* "too full," is it not also possible that it is not full enough? Or perhaps the marginal ridge has not been restored and lacking in this respect the result will spell F-A-I-L-U-R-E.

In approximo-occlusal cavities of bicuspids and molars the so-called

"meat-hole" will probably ensue if contour and marginal ridge are not restored, resulting in subsequent irritation of the soft tissues at the gingival margin and possibly periodontitis with loss of the pulp of the tooth if that were not already extirpated, to say nothing regarding the effect upon the adjacent and occluding teeth and predisposition to decay.

For want of a better method of reproducing the occlusal surface of a bicuspid or molar in amalgam in approximo-occlusal cases, at the same time more accurately restoring occlusion and articulation, I have adopted the following method.

The cavity is prepared according to the principles of Black's Cavity Preparation and lined with cement, after which the rubber dam, if used, is removed. Cotton rolls and napkins in the majority of cases serve admirably to keep out the saliva and maintain a dry cavity.



Matrix and ligature; ligature shown crossing the convex surface of matrix.

A matrix of German Silver No. 35 to 38 gauge is adapted to the tooth, contoured with contouring pliers and cut to desired form and height. It is imperative that the matrix be held immovable during the entire technic and any means of so doing is chosen to fit the case at hand. The form of matrix as illustrated by the illustration is one which best suits this method of amalgam restoration, the method of tying following:

The edges of the holes punched in the metal to permit the passage of ligature are made smooth to prevent the ligature from being cut when drawn tight. The matrix with ligature in position is placed between the teeth. One end of ligature is drawn around the tooth, a surgeon's knot made buccally and the ends are then passed in opposite directions between the teeth and a knot drawn tight at each meeting. This will bring about half of the knots behind the matrix and tend to force it firmly against cavity margins, especially at the cervical border. If necessary gutta-percha or wooden wedges of orange wood may be used to aid in holding matrix immovable.

After matrix has been made secure, inlay wax is forced into the cavity,

jaws occluded and swung as in mastication to ascertain articulation and then trimmed to restore the anatomical form as nearly as possible, especially the marginal ridge and sulci which increase the functioning power of the restoration. The wax is then chilled and an impression taken in modeling compound of only the occlusal surface of that tooth and a tooth mesially and distally to it if possible. The compound should be soft enough to take a clear impression with the least amount of pressure and not hot enough to injure the wax.

The cavity is then cleared of wax, washed out with alcohol, cotton rolls are placed in position and cavity filled with amalgam. I fill the lower two thirds of the cavity by burnishing, finishing the balance of cavity with amalgam more moist, but dry enough to break in a well-defined line. The only way to obtain the proper mix is by experimenting on a model and be able by touch to know when that proper mix has been attained.

Fill cavity a little more than full, then take the compound impression and press to position. This will mark out the pattern to trim to. Repeat this until impression will seat perfectly on all three teeth when matrix may be removed and margins tr mmed and finished.

Patient should be instructed to not masticate food on that side of the mouth for 24 hours as food crowded into the deep sulci might possibly fracture the restoration at the marginal ridge, destroying the most essential part of the usefulness of that restoration.

Restorations made by this method seldom require more than one half hour in excess of time required by other less certain methods and are well worth the additional cost to the patient.

EXTRACTED TEETH WANTED

Dr. Williams and I are engaged in some research work which promises results of interest and value to many dentists. We need as many extracted natural teeth, especially upper anteriors with crowns in good condition, as we can obtain. The more we get, the more accurate the results will be. It is sometimes necessary to extract such teeth, in order to make good restorations. If you have any such teeth, will you help by sending them? I will gladly pay express or postage.

Several have sent in such teeth and we hereby extend our thanks.

GEORGE WOOD CLAPP.

A RAPID AND ACCURATE METHOD OF SOLDERING THE PIN TO A RICHMOND CAP

By J. M. Woodle, D.D.S., Brooklyn, N. Y.

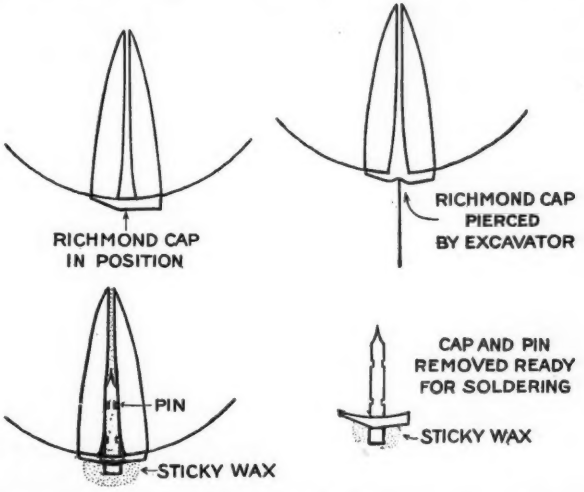
After the band and cap have been fitted to the root, pierce the cap with the end of a small broken off excavator which has been sharpened, entering the canal (this excavator must be smaller than the pin for the root).

The position of the canal can be determined by gently pressing the cap with the point of the excavator.

The gold over the entrance of the root canal will naturally "give," allowing the point of the instrument to enter.

Then gently but firmly force pin through cap until it is well seated.

The object of this method is to countersink the cap so that the flared edges will hug the pin, thus making a strong union between cap and pin with an additional strong hold in the root.



The cap and pin being in position in the mouth, protect the lips and tongue with a napkin.

Then take a piece of sticky wax; heat it in the alcohol lamp and flow it over the pin, thus uniting it to the band.

A simpler method would be to put a little sticky wax on a spatula and flow over pin and band. Care must be exercised to have both pin and band perfectly dry. This end can be attained by the use of hot air from the chip blower or switchboard.

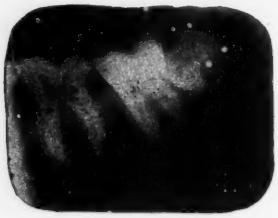
Gently remove band and pin from the root. Invest in equal parts of asbestos fibre and plaster which need not be mixed, but simply moistened and packed in and around the pin and soldered immediately.

This is an accurate method requiring but ten minutes from start to finish.

IMPACTED THIRD MOLAR CAUSES FACIAL PARALYSIS

By B. Barrymore Marco, D.D.S., New York

An interesting case coming under the writer's care recently, was that of a young man, 18 years old, complaining of pain and stiffness of the muscles on the left side, with watering of the left eye.



An impacted tooth

On the right side there was marked facial paralysis, with all the symptoms well defined.

The case had been under the care of a physician who diagnosed the conditions as due to a "cold."

Inflammation in the region of the left inferior third molar which had not erupted, led to thorough examination, and the author's radiograph disclosed an impacted tooth, the roots of which owing to the youth of the patient, had not completely calcified. The illustration shows this condition as well as giving a good idea of the position of the tooth.

The intense pain and stiffening of the muscles, influenced an immediate operation, and with some difficulty the offending tooth was removed.

Novocaine solution was injected, an incision made in the overlying gum and access to the tooth gained by chiselling away considerable bone.

The tooth was then removed, but not easily, the operation lasting two hours and ten minutes.

The recovery was uneventful; there was complete disappearance of the paralysis and accompanying symptoms and there has been no indication of recurrence.

Hotel Ansonia

A new tooth brush is supplied to each guest each day in first-class hotels in Japan. How does it happen that "heathen Japan" is so far ahead of some Christian countries in that cleanliness which is essential to godliness? And in this connection be it known that fifty per cent. of the tooth brushes of the world are made in Japan.—*Healthy Home.*

CLOSED MOUTH IMPRESSIONS

By Samuel G. Supplee, New York, N. Y.

SEVENTH PAPER

SHAPING THE COMPOUND

It is very important that you use too little compound rather than too much, otherwise the compound is liable to run up into the cheek and take the **impression of the muscles in distented positions** rather than **relaxed.**

Roll the compound into a ball the size of a walnut. Heat one side over the direct flame to make it sizzle, then quickly stick it to the centre of the tray. Wet the fingers and spread it with the thumb and fingers as illustrated in Figure 1.

In placing the compound in the tray, it is very important that you form it into an approximate shape of the proposed plate, producing a rim all around from tuberosity to tuberosity.

The compound should not cover the rear one-fourth of the tray in the region of the vault. It should be built in a little mound in the centre, somewhat higher than the vault, so it will be forced to flow toward the rear.

Pass the approximately shaped material over a small flame so that the tip of the flame will strike all around the side of the little mound and will glance over and hit the inside of the rim only. See Fig. 3.

This will super-heat the inside and should create the conditions you want: viz., the outside of the compound being slightly cooler will act as a flexible tray to help control the softer inner compound.

The compound should be in as warm a condition as you can insert it in the mouth.

This is secured by holding it upside down in the surface water of the heater which will equalize the temperature of the compound by reducing the portion that is overheated and softening the portion that is slightly hard.

Do not permit the tray to be immersed in the water, as the aluminum takes the heat very readily and retains it so it will retard the setting of the compound.

TAKING BASE IMPRESSION

You will pass the impression into the mouth sideways, and turn it around when inside the lips and carry it up to position with very light pressure, until you feel your tray is about half way to place and well centred; then quickly flip up the edge of the soft compound on each side

and under the lip as far as it can go, without straining the muscles excessively; then ask the patient (after placing the index finger under the tray) to give the face movements.

While this muscle movement is taking place, you will be gently pressing the tray home with your index finger (placed firmly under the bottom of the tray, opposite the molar region) until it cannot go farther.

When the patient has completed the attempt at movement of the

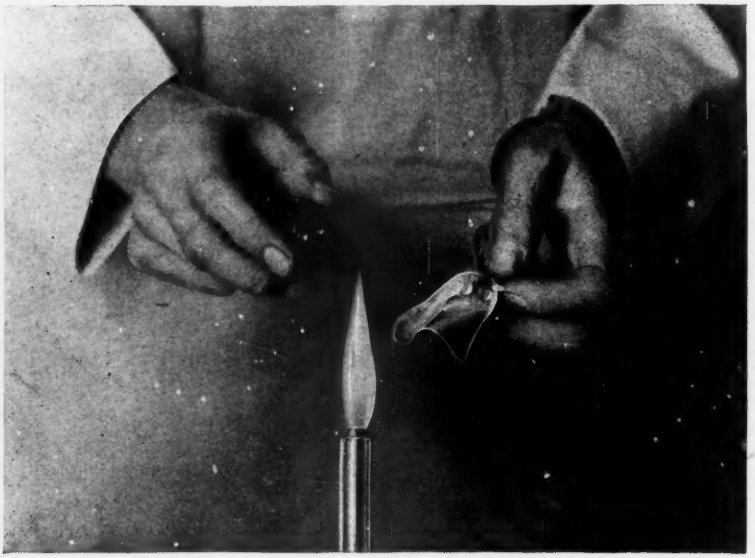


Fig. 1. The upper impression tray is dried. One side of the ball of compound is heated over the flame until it sizzles and is at once attached to the centre of the vault of the dried tray

face (for only about half of them can succeed in doing it when in this position) you will hold the tray steady with the index finger while you massage the cheek by spreading the hand over the face and using the thumb for one cheek and the fingers for the other side, and exerting **equal pressure on both sides at the same time.**

THE MASSAGE

The massaging motion should be gentle, yet firm. The first movement should be slightly upward and forward, then downward and forward, and the greatest pressure should be **in the region of the tray.**

The object of the massaging is to work the excess compound down under the bottom of the tray, and **bring the muscles forward** so that the edge of the impression will be as near the thickness of the finished plate as possible with the mouth open.

Your sense of touch when properly developed will quickly tell you when you have relaxed the muscles to their natural position when the mouth is open. This is very important; for if properly done it will give you the maximum height for the rim and the approximate contour or fullness required in the finished denture.

All of this has to be done quickly and definitely when the compound is in a moulding condition, and the entire operation should not

Fig. 2. With wet fingers shape the ball of compound to present a trough where the alveolar ridge will come; a high ridge to go up under the lip and cheeks and a mound in the centre of the vault. Do not allow the compound to extend quite to the posterior margin of the tray

cover more than one minute and a half. By referring to Pages 25 to 35 of Prosthetic Articulation, by Dr. Geo. W. Clapp, you will find valuable illustrations.

If plumpers are required, these should be added after the occlusal plane is created, and to fit the muscular movement with the mouth closed.

CAUTION

If you should push the tray full up to place and then ask the patient to give the face movements, then massage, the buccal and labial margins will be too short (or low).

If you ask the patient to give the face movements and after these are completed, you continue to push the tray up to place. then massage, the margins will be too high.

The first will make a plate that will not fit so well to start with, but will improve in a little time.

The second will give exceedingly fine results to start with, but will lose some of its firm hold as the muscles stretch over the margins.

If the proper technique is observed, you will secure a height to the rim that when pressed on the muscles later when the mouth is closed, will create a fit that will be permanent.

STAND IN FRONT OF PATIENT

During the entire operation, **you must stand in front of the patient and keep the index finger pressing firmly on the tray overlying the movable soft tissue.** The tray being in contact with the tissues in the rear edge of the vault, will keep it from going up too far or rocking.

It is policy to hold the impression steady and under pressure of the index finger until cold.

Do not attempt to hasten the setting with cold water unless by the effort of your assistant; otherwise you will move the finger sideways or relax pressure, either of which may cause the impression to move before thoroughly set.

TRIMMING BASE IMPRESSION

If your tray has been properly centred, and the other steps properly taken, your tray will only be exposed across the entire rear edge or in spots only. These exposed places should indicate where the tray was pressed into the soft tissues.

If left this way, it will create unequal pressure in our finished work, or may interfere with us getting a correct and unstrained bite, so we **bend it down slightly** at these points by using a pair of curved beak pliers.

If the buccal and labial margins are too thick, they now should be cut off sufficiently to produce the proper fullness desired in the finished denture (See P. A. page 35).

If any of the margins are deficient, it should be ignored at this time.

If the tray is exposed at any point on the buccal or labial border, the materials should be cut down to the tray and that portion of the tray bent away sufficiently to relieve the pressure at that point.

Care should be taken to see that the buccal margins are thin in the region of the tuberosity, otherwise this base impression will be displaced by the congestion of tissue or the passing of the rami or coronoid process when taking the bite.

The base impression is now ready for testing.

REQUIREMENTS AT THIS STAGE OF THE WORK

First, that it does not rock when pressure is brought to bear directly over the ridge in the bicuspid region on either side.

Second, that it has sufficient suction or "sticktion" to hold to place when the lips are not in motion.

If it should drop when the patient attempts to close the mouth, it should make little or no difference; but if it should rock from side to side, this rock must be taken out before proceeding any further, or another base impression taken.

The rock can generally be taken out and the "sticktion" secured by

Fig. 3. When the compound has been properly shaped and the excess pinched off, warm the top of the hill over the flame so that it can be shaped down to a smooth surface. Then pass the entire impression surface of the compound above a small flame, so that the surface may be rendered softer than the underlying portions. Dip the tray and compound into hot water to equalize the heat

holding the entire face of the impression in the hot surface water of the heater for the fraction of a minute, and inserting in the mouth and passing up firmly to place while the patient gives the face movements.

Our base plate is now ready to receive the biting block or **occlusal plane** which is to be the means by which we are to transform this base impression into a **trial plate** or tested impression that will compress the tissues or muscles in their relaxed position with the mouth closed.

CAUTION

Do not make the mistake of trying to reshape the base impression in any way until we have **equalized the biting pressure.**

The underlying principle for this will be outlined under the heading "Muscle Strain," and the application under the heading of "The Correct Bite."

Unless you secure the correct bite with a true and unstrained condition and correctly established occlusal plane, every step that you take by way of improving your impression will tend to spoil it rather than make it better.

If the bite is correct, each time you pass the warmed margins or added material into the mouth and follow the proper technical steps, the impression should improve.

To understand why this condition exists, you must not forget that the molars come in contact with the mass before the incisors strike.

The formation of the mandible and the attachments of the muscles that control it, are of such a nature that if material strikes in the molar region first, the tendency is to move forward first before continuing the upward and backward movements.

If they are embedded in material before the incisors strike, they will continue in the forward.

(*To be continued*)

Editor DENTAL DIGEST,
New York City, N. Y.

In an article entitled "Shall We Discontinue Devitalization" which appeared in the April DIGEST, I made reference to Dr. Ulrich's statement relative to certain investigations carried on by Drs. Best & Davis wherein he stated that the root canal fillings examined by these gentlemen "were done by other dentists."

I have since received a letter from Drs. Best & Davis stating that this statement by Dr. Ulrich was an error, or as they put it, it was "an unfortunate way of expressing a certain idea which he (Dr. Ulrich) wished to convey."

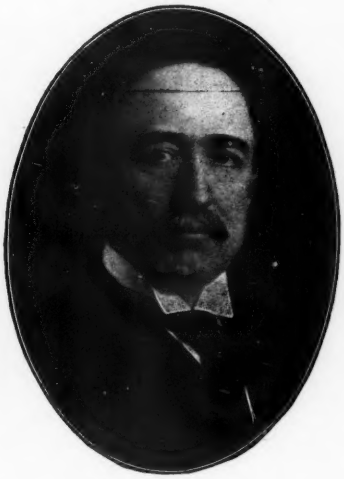
Feeling that my comment on this part of Dr. Ulrich's statement did Drs. Best & Davis an injustice, although done unconsciously and unintentionally on my part, I hasten to ask that you publish this statement.

Yours truly,
WALTER S. KYES,
Parker, So. Dak.

TWO TYPICAL AMERICAN FACES

By L. W. Dunham, D. D. S., New York, N. Y.

Mr. Vance C. McCormick



Mr. W. R. Willcox

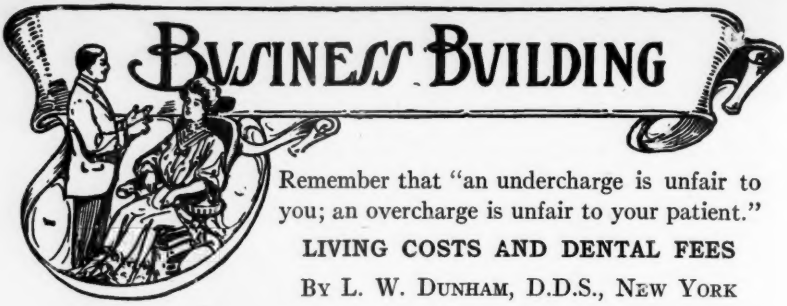
Now that we have an intelligent classification of faces, as to form, it becomes interesting for the dentist who is mastering it or has mastered it to classify faces as he sees them in public places, and also the faces of noted persons as seen in the illustrations in the public prints.

The faces of two men who have recently assumed charge of two important undertakings appear at the head of this page, and it is interesting to note that, so far as one can judge from their photographs, which are not taken quite full front, both exhibit the same type of face and the same modification of that type.

Mr. Vance McCormick has recently assumed charge of the campaign which has for its object the reëlection of Mr. Wilson, while Mr. Willcox is in charge of the campaign in behalf of Mr. Hughes.

Both men are highly regarded for ability and character and each will have charge of a far reaching undertaking. It is not surprising that men with such well defined ability and aggressiveness should exhibit well defined features.

So far as can be told from the pictures, both men exhibit the Medium Long Modification of the Square Type of face.



Remember that "an undercharge is unfair to you; an overcharge is unfair to your patient."

LIVING COSTS AND DENTAL FEES

By L. W. Dunham, D.D.S., New York

All of us have been aware of the "high cost of living." It stares at us from the bill-boards, in the street cars, from magazines and newspapers, and it even forms material for the professional humorists, but most of us are beginning to realize that it is "no joke."

We read and hear different reasons for its being with us and though none of them satisfy, the very clamor to account for rising costs, proves the existence of the conditions, if further proof is needed.

Everything from labor to land values, and from the weather to the war has been blamed, but it has not been realized in many quarters to just what extent the cost of living has increased.

An excellent article in the *Evening Telegram* of New York, Sunday July 9, 1916, sets forth the startling fact that the costs of food stuffs has advanced 108 per cent. since 1896! In other words it now requires $2.08 to buy the same quantity and quality of food which could be bought in 1896 for $1.

In the last five years the increase has been about fifteen per cent. and it is still on the climb.

HOW ARE DENTISTS MEETING CONDITIONS?

From the best information available, we are forced to the conclusion that everything has increased in price except dentistry!

In spite of the fact that dentists are in every way subject to the rising costs of living, they continue to charge the same fees for their services that prevailed ten and fifteen years ago.

That this is true, most of us are willing to admit, but very few have arrived at the explanation for the existence of this unfortunate condition.

THE CAUSE

In the writer's opinion it lies in the fact that so very few dentists *know what their costs are*, and consequently most of them cannot understand why the fees which netted dentists a comfortable living fifteen years ago, are not now sufficient to much more than pay expenses.

When we consider that every article used in the conduct of a dental practice has advanced greatly in price, especially metals and drugs; and

that the standard of living which the dentist as a professional man is expected, yes, *required* to maintain, means a greater drain on his resources, because commodities of the better qualities have advanced more in proportion to the general advance than have the cheaper sorts, it becomes all the more apparent that nothing short of ignorance of the actual conditions, can account for the failure of the majority of dentists to advance their fees in proportion to the demands made upon them.

THE REMEDY

It is evident that the only remedy for the ailing dental profession is a thorough injection of bookkeeping, because it is impossible to know "costs" unless you keep "books" and without a knowledge of "costs," you cannot know your profits.

A bookkeeping system has been called the "nervous system of business" and according to that dentistry is suffering from neurasthenia.

An intelligent adjustment of fees, based on knowledge of actual costs, and the application of business principles in our buying, are the only ways we as a profession can meet the economic conditions successfully, and that means we *must keep books*.

THE IMPORTANCE OF SUGGESTION IN DENTAL PRACTICE

By Charles Nathan, D.D.S., Brooklyn, N. Y.

FOREWORD

The object of this article is to present to its readers in a simple, concise manner a subject which is of vast importance to success in business and professional life. Few may recognize it under its proper classification but unconsciously many rules which are laid down for success are based entirely upon this proposition. The merchant, the doctor, the dentist, in fact every one in business and professional life, makes use of this power of suggestion. To-day the scientific world is awakening to the importance of the wonderful influence of the mind, especially in medicine and dentistry. The direct personal contact between doctor and patient affords a great opportunity for the exercise of suggestion. Patients seeking professional services are naturally very impressionable and it gives us the power to so direct that patient's mentality as to accrue to the mutual benefit of the doctor and the patient. It is possible by means of suggestion either to win and keep or to lose them. To cement a bond of relationship between patient and practitioner that will be satisfactory and

lasting. The author feels certain that if the reader will practically apply the information set forth in this article that he will be amply rewarded, and trusts that in an humble way he may be able to point out one of the most important roads to success in the practice of our chosen profession.

CHAPTER I

Any book on the science of business presents throughout the absolute necessity of suggestion. No matter what subject, whether it be the furnishing of the office, store or show-room, salesmanship, the sales letter, the follow-up letter, the price to be obtained for a commodity, the collection of accounts or numerous other questions essential to business success, the predominant and essential feature is that of suggestion, i. e., the impression upon the mind of the purchaser by the other mind whether expressed personally, by means of writing or the arrangement of inanimate things under the guidance of that mind. What underlies success in one business underlies success in all. Business primarily is an exchange of service for a consideration whether that service be in raw material, the manufactured product, a man's ability or time. One might ask where does the question of suggestion enter in the sale of raw material, say for instance, some ordinary food products like sugar, borax, buckwheat, lentils and a thousand others I might mention. Surely the people must buy these products. But it remained for some genius to take these unnoticed necessities, pack them in attractive packages, clothe them with the romance of their production, advertise them in a way to whet the appetite and lo and behold the ordinary sugar cane blossomed into Crystal Domino Sugar, simple unassuming borax becomes 20 Mule Team Borax drawn by twenty mule teams from Death Valley. Lentils are invested with regality and become Royal lentils and which we are told, have been used for a thousand years as a food. Ordinary herring are made to breathe the romance of the Scottish Coast and as we ride in the cars we behold these hitherto unnoticed food stuffs pictured in gala dress and our mouths water at their appetizing appearance. And yet it is naught but suggestion. The automobile manufacturer's advertisement pictures the delights of an auto ride through the beautiful country and we sigh and wish we were one of that merry, care-free party as we ride home in the cars tired by our day's work. The safety razor ad pictures the delightful expression of the gentleman as he gives himself a head-barber's shave. The Dental Cream manufacturer's ad, shows a young woman smiling, displaying a set of pearly white teeth. Again suggestion to create the desire to purchase. If the dental manufacturer would conduct you into his show room and have the various dental office furniture and appliances scattered about in a careless jumble, instead of arranging them

as he does in model offices complete in every detail, do you think you would be so desirous of possessing those same up-to-date furnishings and appliances that he is enabled to sell by this subtle method of suggestion. A prosperous patient enters the up-to-date office of a modern practitioner and immediately there is suggested to his mind before he meets the doctor, the idea of the doctor's superior ability. The furnishings are mute messengers of that man's neatness, cleanliness and the first step toward a respect for his professional attainments and so in the following chapters I shall endeavor to point out to you every successive step wherein suggestion plays the most important part. Many young men start upon their professional careers fully prepared by the college curriculum to perform their professional work. But after a few years they begin to wonder what is wrong with them and why Dr. So and So, who was only a mediocre student at college, now owns an automobile or is buying real estate, why Mrs. Smith tells him that he is her dentist and he is such a busy man, has such a lovely office and attends the best people in town. What can be the reason? Well the truth is, even if it hurts, Dr. So and So, is a good business man and believes in the moral effect of suggestion. Shades of Ethics, a business man! Yes a business man and I pray the light will soon dawn on those who are responsible for our dental education and lead them to include this most vital feature of any profession in the college curriculum, namely; Business Practice, for after all we must live. Of course we must serve the highest ideals of our profession but can we not do this much better with a peace of mind and a consciousness that we have a better income assured us and perhaps a competence for our old age?

(To be continued.)

COMMERCIALISM AND DENTISTRY

FRANK L. PLATT, D.D.S., SAN FRANCISCO, CAL.

The title of this paper may be somewhat misleading, for it does not refer to the application of commercial methods to the conduct of practice, though it is probably true that some practices might be improved in this way, particularly so far as their financial management is concerned, but it refers rather to the relationship of dental dealers and manufacturers to the profession in general and to the proceedings of dental societies in particular.

The great structure of modern dentistry has not been reared wholly by its practitioners, in fact, without the aid of the dental trades, as the

manufacturers and dealers may be termed, it is more than probable that to-day it would not have advanced very far beyond the position it once occupied when each practitioner made his own instruments and materials, carved and burned the artificial teeth he used and kept his methods strictly to himself. When, however, the needs of the public and profession became manifest those were found who were ready to invest their money in the manufacture of dental supplies, and from this beginning has developed the great dental manufacturing industry of to-day, with its investment of millions, its experimental and research laboratories with their corps of trained employees, and also the vast distributing system of dealers in dental supplies, with the investment of still more millions, contributing very materially to the convenience and progress of the dental practitioner.

It is quite true that many of the products of the dental manufacturers are the inventions or discoveries of dentists, or have resulted from their suggestions, but without the aid of the manufacturer they would never have become of universal use or accessibility.

If the above presentation of the subject is not incorrect, it seems that this particular sort of commercialism is of very vital importance to the dental profession and that any attempt to disrupt the present relationship must result in disadvantage to the practitioner.

Now for the second relationship—that existing between the dental trades and dental societies or associations. As a liberal estimate, it may be said that one half of the practitioners of a given district, city or state belong to dental societies and that half their membership, or twenty-five per cent. of the whole number of practitioners in the district attend their meetings.

There is no fixed way to determine just which features of a dental society meeting are the most valuable; no one knows whether the carefully prepared papers presented by eminent practitioners finally result in the greatest benefit to the public, the good of the ultimate consumer being in all cases the final test, or whether it is the clinics with their interested audiences learning in the most direct and practical way of the latest methods of their fellow workers, or whether it is not the exhibitors' department where is shown the latest development in dental equipments and all the interesting products of the dental manufacturers, with trained men conducting "manufacturers' clinics."

If one straw shows the direction of the wind, and a hay stack in the air indicates the movement of a cyclone, it may be inferred that the sentiment of the profession is expressed, at least in a way, by the difference in the numbers of those who listen to the papers read in dental meetings, and remain seated until the reader has finished, those who

attend the clinics, and those who persist in staying in the exhibit hall, it having been found necessary in many cases to close the exhibits part of the time in order to secure an audience for the essayists and clinicians. It will hardly do, of course, to suggest that this indicates that the majority of practitioners are better able, on account of their mental capacity and professional education, to grasp the utilitarian rather than the intellectual features of a dental meeting, when they may in fact only feel that what they learn in the exhibit hall may be sooner turned to practical advantage than the theories of the essayists, which they may read at any time in the printed transactions of the society.

No matter which one of the varied features of a dental society meeting may ultimately prove to be of the greatest value to the average practitioner and the public, the fact remains that the exhibits and exhibitors' clinics are always very attractive, they aid materially in increasing the attendance, and indirectly bring many into membership in our societies for many of those who attend the exhibits find attractive features in the balance of the program and from motives of professional pride or a desire for personal improvement conclude to do their part in advancing the interests of their professional organizations. It is to the mutual advantage of both our societies and the dental trades that a spirit of active coöperation exist between the two, and our societies should not overlook the fact that though the dental trades reach but a small proportion, about twenty-five per cent. of the whole number of practitioners in a given district, when they exhibit at our meetings they contribute quite largely toward defraying the expense incurred by our organizations.

If too many restrictions are placed on the activities of the dental trades in making these exhibits, they will soon conclude that they would better conduct their own meetings where all members of the dental profession will be welcome and a much larger number of consumers reached than at meetings where our code of ethics necessarily curtails the attendance.

The statement has been made that "commercialism must be taken out of dentistry." Just what this expression means has not been fully explained by those who have made it; but it will be well for those who have the management of our societies in their hands to proceed with caution and use a liberal discrimination when they decide just what forms of commercialism must be excluded from the profession.

That form of commercialism represented by those who, having some method or device for sale, refuse to sell it, excepting to those who are willing to pay an exorbitant fee for a course of instruction in its use or application, cannot be commended and certainly should not be supported by the reputable members of the profession.

To discriminate too severely against the dental trades or against those who, having developed something of value to the profession *and have placed it within the reach of all practitioners*, place their time and skill at the disposal of their fellows for a fee designed to protect themselves from loss of time taken from their practices, will be to perform an act of professional vasectomy rendering our societies and our profession too impotent to reach their highest destiny as contributing factors in the progress of humanity.—*The Pacific Dental Gazette.*

EMPLOYMENT OF UNLICENSED ASSISTANTS

By Arthur L. H. Street, St. Paul, Minn.

Under a statute forbidding dentists from employing unlicensed assistants in the treatment of patients, a dentist is bound to ascertain whether his employees are licensed, according to the holding of the California District Court of Appeals in the case of Anderson vs. Board of Dental Examiners, 149 Pacific Reporter, 1006. He may not blindly assume that an employed assistant has been licensed.

In this case plaintiff was suspended by the state board for the period of one year for an alleged violation of the law of California which prohibits licensed dentists from abetting unlicensed persons in the practice of their profession. In proceedings instituted to review the action of the board, plaintiff asserted want of proof that he knew that the person admitted to his office was unlicensed at the time of his employment, but the court holds "that if it be the fact that the said Munn was not the possessor of such license to practise the profession of dentistry as would make him an available subject of employment by the plaintiff for the purposes for which the evidence shows he was utilized in the latter's offices, or to have permission to use said offices and the paraphernalia thereof for the practice of dentistry, which the evidence sufficiently shows he did, the duty was cast upon the petitioner to ascertain that fact before taking Munn into his service for such purposes, or permitting him to make use of his offices and appliances for the practice of dentistry, and hence his knowledge of the fact, if it be a fact, is to be assumed."

"Better to sink beneath the shock
Than moulder piecemeal on the rock."—*Byron.*

BETTER DOCTORING FOR LESS MONEY

By Richard C. Cabot, M.D., Chief of the Medical Staff in the Massachusetts General Hospital

This article is important to every dentist and will be interesting to many because it deals with a subject closely allied to the dentist's service to his patients. It takes considerable moral courage to advise a patient to follow a course which will deprive the dentist of a fee, especially if he might receive a fee for the operation.

Only part of the article is here reproduced. The other part is also worth reading.—Editor.

When a patient visits the world-famous Mayo Clinic at Rochester. Minnesota, he is often examined not merely by the surgeons who may eventually operate on him but by various other specialists representing the different fields of medicine. It often turns out that he has no condition requiring surgery. The question then arises. What is the matter with him? And this can only be determined by an examination, perhaps of his eyes, perhaps of his blood, or of some organ.

But for the patient the special point of excellence is this: He pays a certain fee, and for that lump sum gets *whatever examinations he may need* from any or all of a group of specialists there assembled and working on salary. The fee is determined, as I understand it, by a business agent of the Mayo Clinic, who has correspondents in all parts of the country and whose object is to discover approximately the income of every patient visiting that clinic. From the figures thus obtained regarding the patient's income, the fee can be calculated upon a percentage system.

This arrangement is admirable in most respects. From the point of view of the public it has only one drawback; it is done for profit, and whatever profit accrues—one hears rumors that the gross receipts of the clinic are in the vicinity of a million dollars a year—might have been saved had the general public of its own initiative formed a coöperative group and hired a similar aggregation of physicians and surgeons. If it be objected that men of such skill and eminence cannot be hired for any reasonable salary, the answer is that there is no good reason to suppose that the physicians at the Mayo Clinic had any very extraordinary scientific endowment to start with. They have so skilfully organized their work that they have been enabled to carry out the same diagnostic procedures and perform the same operations an enormous number of times.

As a result of this practice and of a first-rate but probably not extraordinary natural capacity, they have attained a degree of efficiency and skill that is equaled in very few clinics elsewhere. There is no reason, therefore, why the public should not itself organize a coöperative medical

enterprise like the Mayo Clinic, gaining the advantages and superiorities of that clinic for much lower fees.

There is a similar advantage of the coöperative undertaking over similar enterprises organized by a life insurance company. The company has to make its profit, and that profit necessarily comes out of the fees of the patients. If the patients themselves formed a group and hired the doctors, instead of allowing the insurance company to do so, they could get the same service for less money. Furthermore, undertakings such as that of the Life Extension Institute suffer under another disadvantage; they do not offer group diagnosis. The Life Extension Institute, for instance, offers to its subscribers a yearly examination by a competent physician for five dollars or less.

But for the reasons already given, and still further to be insisted upon, no one man is competent to make such an examination. Nevertheless, the Life Extension Insurance Institute offers us an excellent illustration of the sound principle of a stitch in time. It aims at the prevention of disease through early examination and sound advice. All this is as it should be, and represents a long step in the right direction, but it still has the disadvantages of individualism in medicine, and starts its fine work under a serious handicap.

STATE INSURANCE

Anyone who has read this far is likely to have been conscious of a rising tide of interrogation and objection which might at last burst out in the question, "What about the national sickness insurance systems of Germany and England? These are not organized for profit, but by the State itself. They are cheap and comprehensive. Do they not accomplish all that is here advocated, and more?"

The right answer to this question seems to me the most important issue confronting anyone who desires to improve medical service in the United States at the present day. For it is highly probable that some form of sickness insurance, state or national, will be tried out in this country before long. Before this is done, it is my earnest hope that we may learn not only from the successes but from the failures of our brethren across the seas, and may adopt what is good while avoiding what is bad in their systems. *The great fault in the English and German systems of sickness insurance is that they do not centre their medical service around organized groups of physicians—that is, around hospitals.* They still rest upon the primitive conception of the doctor working alone, like a cobbler or a peddler, not in organized groups. They still cherish the exploded beliefs that the isolated physician can make satisfactory diagnoses and give satisfactory treatment in a large proportion of cases. They still

harp upon cheapness rather than upon a good quality of service. Whenever sickness insurance gets a footing on a large scale in this country, I hope with all my heart that it will start right instead of wrong, and I hope that it will be planned and led by those who know most about it—namely, by the physicians.

Nothing could be worse for the reputation and dignity of our profession than to become engaged, like the English medical profession, in an unseemly scuffle with the Government, to lose in the fight, and finally to be dragged, kicking and struggling, into the enemy's camp and forced to do what they had previously and angrily refused. Let us make our experiments and gain our competence in small, voluntary groups before the State tries to take over so delicate and dangerous a task—especially the State as we now have it, governed not by those who know most about the task of government but by those most skilful in climbing, by fair means or foul, into governmental chairs.

SURGERY UNDER A COÖPERATIVE SYSTEM

George Bernard Shaw, in his preface to his play called "The Doctor's Dilemma," called attention to a very serious danger attendant upon the practice of surgery under the present conditions of private competitive medicine. He pointed out that the decision for or against a surgical operation means deciding whether a particular method of treatment (surgery) is the best in sight. This decision he saw to be often difficult; and if he had known more about the details of medical work he would have known that its difficulty is at times almost insuperable. In appendicitis, gall bladder disease, or stomach-ulcer, considerations for or against operation are often so delicately balanced that even under the best conditions for accurate judgment it is very difficult to decide rightly. Men of skill and eminence may honestly and vigorously differ as to whether an operation will do good or harm.

But when a surgeon has to decide such a question alone his task is made vastly harder by the introduction of an irrelevant and most disconcerting factor—namely, the prospective fee. If he decides that the patient needs an operation, that means fifty, a hundred, a thousand dollars, or more for him. If he decides that no operation should be done, there is no fee for him. Shaw protests, and I think with perfect justice, that it is not fair to subject men of average honesty, men like ourselves, to conditions which may grievously tempt them to be dishonest. It is not fair to the doctor, and it is not safe for the patient. The patient wants a perfectly unbiased judgment; he is extraordinarily fortunate if he gets it.

But now suppose the patient were one of a coöperative group of individuals who had agreed to pay a good salary to a skilful surgeon as

one of a group of physicians giving their whole time to advancing and conserving the health of the people who pay them. Then, and only then, could the average patient expect from the average surgeon an opinion utterly unbiased by pecuniary considerations.

THE TEMPTATION OF SURGEONS

I do *not say that surgeons perform unnecessary operations for money*, but I must say that they are under extraordinary temptations to do so, and if they always resist those temptations they must be far above the ordinary man in virtue. I have seen many a consultation inside a hospital group and many outside it, and I have had occasion to compare the utter freedom from pecuniary bias that obtains among the physicians of a free hospital with the desperate efforts of privately paid consultants to make up their minds uninfluenced by considerations of profit. In my mind, there is no possible doubt that the patient in a free hospital gets a sounder, cooler, better balanced judgment on the question, "Is operation now necessary or unnecessary," than he does under the conditions of private practice outside hospitals.

There is nothing miraculous about the staff or the buildings or the clinics of a hospital. The latter are generally ugly and dreary, but they do favor honest, impartial judgment such as a sick patient imperatively needs and will, I hope, ere long demand, not only when he is forced by poverty to attend a free hospital, but when he is moderately well-to-do and desires to pay for what he gets.—*The American Magazine.*

THE RELATION OF THE DENTIST TO THE MANUFACTURER AND DEALER

By Guy Morgan, D.D.S., Paris, Tex.

I have taken as my subject for this paper one that so far as I know has had very little attention before the dental associations or in the dental journals, yet having viewed the subject from both sides, I feel that a better understanding of that relation by the dentists themselves might cause a closer feeling of mutual interest to prevail which in the end would result in mutual benefit to all concerned.

The subject was suggested to my mind by the treatment that is so often accorded a representative of a manufacturer or dealer when he makes his first visit to the dentist's office. Too frequently he is treated very much as we are accustomed to treat a book agent or some one who is only trying to separate us from our hard-earned cash.

The greatest difference between a successful dentist and the failure is that the former thinks. He uses his brain and profits by his thoughts. If all would do that, our profession would soon be recognized as the most rapidly advancing profession to-day. It is a well known fact that in our profession we have much narrow mindedness, petty jealousy and knocking of competitors.

Why is this? Because we do not take the time to think and reason things out for ourselves. If we did we would realize that there was nothing to be gained by such an attitude. The old saying that "united we stand, divided we fall" is just as true in dentistry as anywhere else.

This only leads up to the thought that I want to give you. If we stopped to think we would feel much more kindly toward our dealers and manufacturers. Do you realize how much our profession owes to them?

If it were not for the manufacturers dentistry would not be the proud profession that it is to-day. Did you ever stop to think who is responsible for the beautiful office furniture that we have to select from to-day that makes a dental office, if modern equipment is used, one of the most attractive offices to be found anywhere? Who designed it and made it to fit into all the requirements of the dentist? Who has developed the modern dental chair, as nearly perfect as it seems possible to make it? When not so many years ago we were using a common rocking chair propped back with a stick of stove wood pushed under the front of the rocker to keep it leaning back and steady, or if we were more progressive we had an ordinary head rest fastened to any old chair. Who has developed our modern electric appliances such as the electric engine, mouth lamps, cauteries, switchboards and brought them up to the standard that is not equaled by any other electric equipment outside of dentistry? Certainly not the dentist, for very few of us even know how to repair them when they get out of order. Who then must we thank for all these? The manufacturer.

How about your cements and alloys? Who spent the money to perfect these? Who furnished the money for all these expensive experiments to determine the exact amount of ingredients and proper mixing of these to get the best results? It is true that Dr. Black is responsible for the improvement of amalgams, but of what use would his experiments have been if the manufacturers had not sent their experts to Dr. Black and had them go through his experiments with him and then gave us the benefit of these experiments at a price we could afford to pay? Otherwise we would have gained little from these important discoveries. You all know how hard the manufacturers have been trying for years to discover the ideal filling material, while it is only within the past few that the profession has made any concerted effort toward research work.

Take plate work, for instance; how many of us even know the constituents of the best dental rubbers? We are content to leave all the responsibility on the manufacturer. The same applies to plaster of Paris. And how about our teeth? What good would it do us to know about anatomical moulds and interchangeable teeth if the manufacturers with their millions of dollars invested in factories did not make them and sell them to us at a price within reach of our pocket book?

Do you think we would have the cohesive golds, the mat and fibre golds, the clasp metal, the easy-flowing solders with the proper alloys for color, the beautiful synthetic filling, the well tempered, correctly shaped instruments, the nerve broaches, mouth mirrors and all the other useful accessories which we are so dependent upon without the aid of the manufacturer?

The dealer is of great benefit to us. He keeps all these things in stock so that we may secure them with the least possible delay.

When our collections are poor he carries our accounts for us, often having to borrow money himself in order to grant this favor, paying interest on it; and then when after months of patient waiting he timidly suggests to you that a small remittance would be acceptable, do not become angry and stop trading with him, but remember that he is your friend and entitled to the same just consideration that you would expect him to show you.

Let him know that you appreciate what he is doing for you. You will not have cause to regret it, and the next time you need a favor he will be glad to grant it. Don't send in an order for teeth and forget to mention the shade and blame the dealer if you do not get what you want.

I recently saw an order which said, "Please send me a set of teetn medium size and medium shade"; another said, "Send me a set of teeth for a brunette lady 42 years old with one child"; still another said, "Send me a lower incisor, make it good and wide," no model enclosed. Yet the dealer is blamed if it is not satisfactory. So often we blame the dealer when the fault is not his at all, but our own.

I believe that the exhibits at our State meetings are very beneficial and should be encouraged. A certain time should be set aside on the program for the members to take in the exhibits. It is to the interest of the profession that our members be kept acquainted with the advancement that is being made in equipment and modern appliances and materials.

Many of our members do not live near a dealer and do not have an opportunity to see these things at any other time. Then, too, these exhibits are in charge of experts in their respective lines and the educational value should not be overlooked. The object of our association meetings is to educate the members and this certainly has its place.

Our State Association has an exhibit committee appointed each year and I think it is wise. Some states charge a big fee for exhibit space and then seem to have no other interest in the exhibits, and as soon as a member begins to get interested in the exhibit he is called in to the meeting and there is no time set aside for this part of the meeting, although the exhibitors have furnished much of the money to make the meeting a success. This should have consideration, for if the exhibitors should stop making the meetings because of unfair treatment our meetings would suffer in loss of interest and attendance.

The expense of sending an exhibit half across the continent is far greater than the immediate results. The salary and expenses of the expert demonstrator to accompany it is great, yet they are glad to do it if their efforts are appreciated. He is working for our interest and let us not condemn his article until we have first investigated it. It may be the very thing we have often felt the need of.

I know we are not unappreciative, but we have just never thought of the matter in the proper light, and I want to ask of you that when the representative of a dealer or manufacturer calls on you in your office, treat him as a gentleman as long as he conducts himself as one, and you will usually find him to be one. Remember that it costs his house considerable money to send him to you, also that he is trying to make a living as well as you, and his success or failure depends to a certain extent upon you. If you are too busy just then, appoint a time when you can give him a few minutes of your time and he will appreciate it and he may have something of greater value to you than the amount of money you could make at the chair during the few minutes you are devoting to him.

In this way you will cement more closely the friendship between the profession and the dealer and manufacturer who have common interests and can be of material assistance to each other.—*Texas Dental Journal.*

DENTAL ECONOMIES

"Dentists of the country waste more than $200,000 each year by not guarding the fragments of gold which fall during the mouldings, polishing and setting of crowns, bridges and inlays. This loss may be entirely eradicated by a little care and small initial expense.

"Care of the office books will add to the bank account. I know of one practitioner who died leaving uncollected accounts on his books amounting to $80,000. Some were twenty years old. Dentists should refuse treatment to the "dead beat" but to the poor, never"!—DR. HINMAN—*The Dental Register.*

PRACTICAL HINTS

[This department is in charge of Dr. V. C. Smedley, 604 California Bldg., Denver, Colo. To avoid unnecessary delay, Hints, Questions, and Answers should be sent direct to him.]*

TO MAKE OVER AN OLD BUR.—When a bur becomes dull and of no further use, it may be made useful again by grinding half away on an emery wheel, thereby making an inverted cone out of it.—T. J. FORD, D.D.S., Searcy, Ark.

TO REPLACE PIN FACING ON A BRIDGE WHICH HAS POST ABUTMENTS.—When pins of the facing still remain on bridge adjust rubber dam if possible. If same cannot be done use cotton rolls, select shade and build Aschers artificial enamel around pins, moulding same in shape of facing and leveling incisal end, so as not to overhang.—J. F. POCOCK, D.D.S., Lancaster, O.

MAKING MOULD (IN RING) STICK TO CASTING MACHINE WHILE CASTING.—Just after removing cast from burner rub modeling compound on the outer circumference of investment and ring, place same on machine, bear down and turn air on and then off—result—investment ring sucks tight down to machine. Melt gold and cast.—J. F. POCOCK, D.D.S., Lancaster, Ohio.

SIMPLE PROCEDURE IN ANTRUM OPERATION.—After you have extracted and bored the opening into the antrum with a bur, especially for that purpose—then what? You remember the metal tube that the lecturer on oral surgery told you to make. Don't do it.

Buy a package of large goose-quill picks from the drug-store. Select a large, round one and cut off both ends until about desired length. Perforate the end you insert all around, say three millimetres down with a small round bur. Then bur two small holes near the other end close together at right angle to the long axis of the quill. Insert into these holes a piece of orthodontia wire (about tripple naught gauge) work quill into position and wire to teeth on each side. Take a rubber calk such as is usually found in novocain vials, trim to fit quill and dismiss patient until the next day—all in a few minutes. Trim off upper end of quill as granulation progresses from within.—J. F. ADAMS, D.D.S., Clinton, Ind.

*In order to make this department as live, entertaining and helpful as possible, questions and answers, as well as hints of a practical nature, are solicited.

RUGAE.—I agree with Dr. Victor Lay of Buffalo, in reference to the reproducing of rugae in vulcanite plates. My patients are very enthusiastic over rugae reproductions in their plates, and take occasion to thank me for the ease and comfort with which they can handle food as compared with the smooth surfaces usually found in artificial dentures of this kind. I use, however, a ready made rugae pattern of thick tin foil called "Steele's Rugapaks," manufactured by the Columbus Dental Manufacturing Co.

The extra time consumed by using this is nothing, for the reason that the vulcanite is polished when the tin is removed and five minutes' work around the palatal surfaces of the teeth is all that is required. Always make sure that the waxing up is the proper thickness, and you will have entire satisfaction in rugae reproductions.—F. E. CLOUD, D.D.S., New York City.

EMERGENCY REPAIR OF A BROKEN VULCANITE DENTURE.—A temporary emergency repair of a broken vulcanite denture, to tide the patient over it until it is convenient to repair it properly, may be effected in the following manner. With a small rose-head bur in the engine a row of holes is drilled on each side of the break one eighth of an inch apart and one eighth of an inch from the edge of the fracture. The two pieces are then laced together with waxed floss silk or any strong thread, affording a surprisingly strong joint.—H. S. TAYLOR, D. D. S., *Australian Journal of Dentistry*.

AN EMERGENCY WATER SYRINGE.—Every dentist will find himself at some time with a leaky water syringe bulb and can not wait to order another. Here is a remedy. Take off the old bulb, go to a drug or notion store, secure a five-cent rubber ball. With a cylindrical bur cut a hole, more oblong than round in the ball, put vaseline around the opening, press in the part and screw on the nozzle. You have made your syringe useful again.

FOLLOWING THE PREPARATION OF A BRIDGE IMPRESSION.—I make a staple of German silver wire so that each end will rest in an abutment or in the impression of the tooth alongside of it. The model should never be made of plain plaster, but invariably of some good investment compound. For years I have used 2 parts of any good inlay investment material to 1 part of coarse plaster of Paris mixed to the consistence of thick cream. The impression should be thoroughly soaked in water after varnishing and oiling, the surplus water removed, the impressions of the teeth filled, the wire placed carefully into position in the soft material, and the model completed. The cross bar of the wire should stand a very little above the level of the impression of the gum between the abutments. This lessens the danger of fracturing the model when separating it from the impression as well as when preparing it for the investment, and exercises, I

believe, a very considerable control over the investment during the heating and soldering operation. Finally, when the bridge is on the model and ready for completion, I remove the model from the articulator, soak it thoroughly, and with an old pair of plate shears trim away all the surplus, in most cases trimming down to the wire. The use of the wire enables us to leave but a very small portion of the model, so that the final investment is almost entirely of new material. We do, however, leave sufficient of the model to avoid the risk of distorting the wax, as is likely to be done in lifting the waxed bridge bodily from the model. The remainder of this model is soaked again and invested in the same material, the surplus of which, during the crystallizing process, is trimmed with the spatula, leaving but a narrow margin on all sides of the piece placed in it. The smaller the bulk, the less will be the contraction.—JAS. KENDALL BURGESS, D.D.S., *The Dental Cosmos.*

QUESTIONS AND ANSWERS

Question.—Will you kindly have writer informed through your pages in regard to the following question. Even though it may sound simple to some it has worried the writer and he has not been able to find any remedy for same.

A lady, age about 30 years, had pyorrhea in somewhat more than a mild form. Treatment was rendered gums. In about four or five months they were doing well save in four places. These were the lower laterals and cuspids, as a bridge was attached to laterals. There can be found no pus at these places but considerable soreness at the mentioned places, due to irritation of crowns. The bridge was taken off as the treatment was given and the crowns were shortened, but it seems to be of no help. The desired answer will explain how to bring the soreness, which resembles proud flesh, to normal.—F. N. P.

Question.—Patient, man of 25 years, wearing glasses, complained of cold air hurting severely upper left cuspid, especially in winter, when it was painful to open his mouth. When wind struck the tooth it caused sharp pain on cheek and in left eye. Had been to several dentists and gotten several different brands of advice. The advice that pleased him most was: to "have tooth covered with heavy gold crown to keep out air." Tooth perfectly sound, occlusion good, gums in good condition. The things that he had been told by several of the dentists were amusing. My diagnosis was this: That the fellow wanted a gold crown, and had to think up some tale to get by. I refused to make crown, and sent him to an oculist, with a promise to devitalize the cuspid if the oculist said root was in any way causing eye trouble. What do you or any reader think of it?—J. W. P.

DIGESTS

THE NATURE, MANNER OF CONVEYANCE AND MEANS OF PREVENTION OF INFANTILE PARALYSIS

By Simon Flexner, M.D.

Director of Laboratories of The Rockefeller Institute for Medical Research, New York

The Rockefeller Institute for Medical Research has been appealed to by so many physicians and laymen for information and advice on the subject of infantile paralysis that it has seemed desirable to relate the facts of present knowledge concerning certain highly pertinent aspects of the disease, together with deductions of practical importance derived from them.

Nature.—Infantile paralysis is an infectious and communicable disease which is caused by the invasion of the central nervous organs—the spinal cord and brain—of a minute, filterable micro-organism which has now been secured in artificial culture and as such is distinctly visible under the higher powers of the microscope.

Location of the Micro-Organism or Virus in the Sick.—The virus of infantile paralysis, as the micro-organism causing it is termed, exists constantly in the central nervous organs and on the mucous membrane of the nose and throat and of the intestines in persons suffering from the disease; it occurs less frequently in the other internal organs, and it has not been detected in the general circulating blood of patients.

Location of the Virus in Healthy Persons.—Although the micro-organism of infantile paralysis is now known, the difficulties attending its artificial cultivation and identification under the microscope are such as to make futile the employment of ordinary bacteriologic tests for its detection. Nevertheless, the virus can be detected by inoculation tests on monkeys, which animals develop a disease corresponding to infantile paralysis in human beings. In this manner the fact has been determined that the mucous membrane of the nose and throat of healthy persons who have been in intimate contact with acute cases of infantile paralysis may become contaminated with the virus, and that such contaminated persons, without falling ill themselves, may convey the infection to other persons, chiefly children, who develop the disease.

Relation of Virus to Types of the Disease.—The virus has, apparently, an identical distribution irrespective of the types or severity of cases of

infantile paralysis. Whether the cases correspond with the so-called abortive forms of the disease in which definite paralysis of the muscles does not occur at all, or is so slight and fleeting as often to escape detection; whether they correspond with the meningeal forms in which the symptoms resemble those of acute meningitis with which muscular paralysis may or may not be associated; or whether they consist of the familiar paralytic condition, the virus is present not only within the nervous organs, but also on the mucous membranes of the nose, throat and intestines.

Escape of the Virus from the Body.—Micro-organisms which convey disease escape from the body of an infected individual in a manner enabling them to enter and multiply within fresh or uninfected individuals in such a manner as to cause further disease. The virus of infantile paralysis is known to leave the infected human body in the secretions of the nose, throat and intestines. It also escapes from contaminated healthy persons in the secretions of the nose and throat. Whether it ever leaves the infected body in other ways is unknown. At one time certain experiments seemed to show that biting insects, and particularly the stable fly, might withdraw the virus from the blood of infected persons and inoculate it into the blood of healthy persons. But as the virus has never been detected in the blood of human beings, and later experiments with the stable fly have not confirmed the earlier ones, this means of escape of the virus must be considered doubtful. On the other hand, it has been shown by experiments on animals, so that the same facts should be regarded as applicable to human beings, that the virus seeks to escape from the body by way of the nose and throat, not only when inoculation takes place through these membranes, but also when the inoculation is experimentally made into the abdominal cavity, the blood, or the brain itself. From this it is concluded that the usual means of escape of the virus is by way of the ordinary secretions of the nose and throat and, after swallowing these, with the discharges of the intestines.

Entrance of the Virus into the Body.—The virus enters the body, as a rule if not exclusively, by way of the mucous membrane of the nose and throat. Having gained entrance to those easily accessible parts of the body, multiplication of the virus occurs there, after which it penetrates to the brain and spinal cord by way of the lymphatic channels which connect the upper nasal mucous membranes with the interior of the skull. Whether the virus ever enters the body in any other way is unknown. Certain experiments already referred to make it possible that it may be inoculated into the blood by insects, and other experiments have shown that under peculiar and extraordinary conditions, it may in monkeys enter through the intestines. But while the latter two modes of infection

may operate sometimes, observations in human cases of infantile paralysis and on animals all indicate that the main avenue of entrance of the virus into the body is by way of the upper respiratory mucous membrane, that is, the membrane of the nose and throat.

Resistance of the Virus.—The physical properties of the virus of infantile paralysis adapt it well for conveyance to the nose and throat. Being contained in their secretions, it is readily distributed by coughing, sneezing, kissing, and by means of fingers and articles contaminated with these secretions, as well as with the intestinal discharges. Moreover, as the virus is thrown off from the body mingled with the secretions, it withstands for a long time even the highest summer temperatures, complete drying, and even the action of weak chemicals, such as glycerin and phenol (carbolic acid), which destroys ordinary bacteria. Hence mere drying of the secretions is no protection; on the contrary, as the dried secretions may be converted into dust which is breathed into the nose and throat, they become a potential source of infection. The survival of the virus in the secretions is favored by weak daylight and darkness, and hindered by bright daylight and sunshine. It is readily destroyed by exposure to sunlight.

Conveyance by Insects.—Since epidemics of infantile paralysis always arise during the period of warm or summer weather, they have been thought of as possibly being connected with or dependent on insect life. The blood-sucking insects have especially come under suspicion. Experiments have been made with biting flies, bedbugs, mosquitoes, and with lice. Neither mosquitoes nor lice seem able to take the virus from the blood of infected monkeys or to retain it for a time in a living state. In one instance, bedbugs have been made to take up the virus from the blood of monkeys, but they did not convey it by biting to healthy monkeys. Certain experiments did indicate that the biting stable fly could both withdraw the virus from the blood of infected and reconvey it to the blood of healthy monkeys, which became paralyzed. But more recent studies have failed to confirm the earlier ones. Moreover, experimentally inoculated monkeys differ in one way from human beings suffering from infantile paralysis, for while the virus may appear in the blood of the former, it has never been detected in the blood of the latter. The ordinary or domestic fly may become contaminated with the virus contained in the secretions of the body and serve as the agent of its transportation to persons and to food with which it comes into contact. Domestic flies experimentally contaminated with the virus remain infective for forty-eight hours or longer. While our present knowledge excludes insects from being active agents in the dissemination of infantile paralysis, they nevertheless fall under suspicion as being potential mechanical carriers of the virus of that disease.

Conveyance by Domestic Animals.—The attention which the recent epidemic of infantile paralysis has drawn to the diseases attended by paralysis has led to the discovery that domestic animals and pets are subject to paralytic diseases. The animals which have especially come under suspicion as possibly distributing the germ of infantile paralysis are poultry, pigs, and dogs and cats. But in isolated instances, sheep, cattle and even horses have been suspected. All these kinds of animals are subject to diseases in which paralysis of the legs and other parts of the body sometimes appear. In not a few instances, paralytic diseases among poultry or pigs have been noted to coincide with the appearance of cases of infantile paralysis on a farm or in a community. Experimental studies have, however, excluded the above-mentioned animals from being carriers of the virus of infantile paralysis. The paralytic diseases which they suffer have long been known and are quite different from infantile paralysis. Their occurrence may be coincidental; in no instance investigated has one been found to be responsible for the other.

Routes of Travel.—Studies carried out in various countries in which infantile paralysis has been epidemic all indicate that, in extending from place to place or point to point, the route taken is that of ordinary travel. This is equally true whether the route is by water or land, along a simple highway or the line of a railroad. In other words, the evidence derived from this class of studies confirms the evidence obtained from other sources in connecting the distributing agency intimately with human beings and their activities.

Survival of the Virus in the Infected Body.—The virus of infantile paralysis is destroyed in the interior of the body more quickly and completely than, in some instances, in the mucous membrane of the nose and throat. It has been found in monkeys, in which accurate experiments can be carried out, that the virus may disappear from the brain and spinal cord within from a few days to three weeks after the appearance of the paralysis, while at the same time it is still present on the mucous membranes mentioned. The longest period after inoculation in which the virus has been detected in the mucous membrane of the nose and throat of monkeys is six months. It is far more difficult to detect the human than the monkey carriers of the virus since, as directly obtained from human beings, the virus displays a low degree of infectivity for monkeys; while once adapted to monkeys, the virus becomes incredibly active, so that minute quantities are capable of ready detection by inoculation tests. Yet in an undoubted instance of the human disease, the virus was detected in the mucous membrane of the throat five months after its acute onset. Hence we possess conclusive evidence of the occurrence of occasional chronic human carriers of the virus of infantile paralysis.

Fluctuation in Epidemics.—Not all epidemics of infantile paralysis are equally severe. Indeed, great variations or fluctuations are known to occur not only in the number of cases, but also in the death rate. The extremes are represented by the occasional instances of infantile paralysis known in every considerable community and from which no extension takes place, and the instances in which in a few days or weeks the number of cases rises by leaps and bounds into the hundreds, and the death rate reaches 20 per cent. or more of those attacked. While all the factors which determine this discrepancy are not known, certain of them have become apparent. A factor of high importance is the infective power or potency, or, technically stated, the virulence, of the micro-organism or virus causing the disease. This virus is subject to fluctuations of intensity which can best be illustrated by an example. The virus as ordinarily present in human beings even during severe epidemics has low infective power for monkeys. But by passing it from monkey to monkey, it tends to acquire after a variable number of such passages an incredible activity. However, occasional samples of the human virus refuse to be thus intensified. But once rendered highly potent, the virus may be passed from monkey to monkey through a long but not indefinite series. Finally, in some samples of the virus at least a reverse change takes place —the virus begins to lose its virulence until it returns to the original or even to a diminished degree of infective power. In this respect the behavior of the virus corresponds to the onset, rise and then the fall in number and severity of cases as observed in the course of epidemics of infantile paralysis and other epidemic diseases. Hence either a new active specimen of the virus may be introduced from without which, after a certain number of passages from person to person, acquires a high potency; or a specimen of virus already present and left over from a previous epidemic after a resting period and similar passages again becomes active, and reaches an infective power which equals or even exceeds that originally possessed. Another but more indefinite factor relates to the degree of susceptibility among children and others affected, which at one period may be greater or less than at another.

Varying Individual Susceptibilities.—Not all children and relatively few adults are susceptible to infantile paralysis. Young children are more susceptible, generally speaking, than older ones; but no age can be said to be absolutely insusceptible. When several children exist in a family or in a group, one or more may be affected, while the others escape or seem to escape. The closer the family or other groups are studied by physicians, the more numerous it now appears are the number of cases among them. This means that the term "infantile paralysis" is a misnomer, since the disease arises without causing any paralysis whatever,

or such slight and fleeting paralysis as to be difficult of detection. The light or abortive cases, as they are called, indicate a greater general susceptibility than has always been recognized, and their discovery promises to have far reaching consequences in respect to the means employed to limit the spread or eradicate foci of the disease.

Period of Incubation.—Like all other infectious diseases, infantile paralysis does not arise at once after exposure, but only after an intervening lapse of time called the period of incubation. This period is subject to wide limits of fluctuation: in certain instances it has been as short as two days; in others it has been two weeks or possibly even longer. But the usual period does not exceed about eight days.

Period of Infectivity.—Probably the period at which the danger of communication is greatest is during the very early and acute stage of the disease. This statement must be made tentatively since it depends on inference, based on general knowledge of infection, rather than on demonstration. Judging from experiments on animals, the virus tends not to persist in the body longer than four or five weeks, except in those exceptional instances in which chronic carriage is developed. Hence cases of infantile paralysis which have been kept under supervision for a period of six weeks from the onset of the symptoms may be regarded as practically free of danger.

Protection by Previous Attack.—Infantile paralysis is one of the infectious diseases in which insusceptibility is conferred by one attack. The evidence derived from experiments on monkeys is conclusive in showing that an infection which ends in recovery gives protection from a subsequent inoculation. Observations on human beings have brought out the same fact, which appears to be generally true, and to include all the forms of infantile paralysis, namely, the paralytic, meningeal or abortive, which all confer immunity.

Basis of the Immunity.—The blood of normal persons and monkeys is not capable of destroying or neutralizing the effect of the virus of infantile paralysis. The blood of persons or monkeys who have recovered the disease is capable of destroying or neutralizing the effect of the virus. The insusceptibility or immunity to subsequent infection, whether occurring in human beings after exposure or monkeys after inoculations, rests on the presence of the destroying substances, the so-called immunity bodies, which arise in the internal organs and are yielded to the blood. So long as these immunity bodies persist in the body, protection is afforded; and their presence has been detected twenty years or even longer after recovery from infantile paralysis. Experiments have seemed to show that the immunity bodies appear in the blood in the course of even the mildest attack irrespective of the severity of the case.

Active Immunization.—Protection has been afforded monkeys against inoculation with effective quantities of the virus of infantile paralysis by previously subjecting them to inoculation with subeffective quantities or doses of the virus. By this means and without any evident illness or effect of the protective inoculation, complete immunity has been achieved. But the method is not perfect, since in certain instances not only was immunity not obtained, but unexpected paralysis intervened. In the instances in which protection was accomplished, the immunity bodies appeared in the blood.

Passive Protection.—By transferring the blood of immune monkeys to normal or untreated ones, they can be rendered insusceptible or immune, and the immunity will endure for a relatively short period during which the passively transferred immunity bodies persist. The accomplishment of passive mmun zation is somewhat uncertain, and its brief duration renders it useless for purposes of protective immunization.

Serum Treatment.—On the other hand, a measure of success has been achieved in the experimental serum treatment of inoculated monkeys. For this purpose blood serum derived either from recovered and protected monkeys or human beings has been employed. The serum is injected into the membranes about the spinal cord, and the virus is inoculated into the brain. The injection of serum must be repeated several times in order to be effective. Use of this method has been made in a few instances in France, where the blood serum derived from persons who had recovered from infantile paralysis has been injected into the spinal membranes of persons who have just become paralyzed. The results are said to be promising. Unfortunately, the quantity of the human immune serum is very limited, and no other animals than monkeys seem capable of yielding an immune serum, and the monkey is not a practicable animal from which to obtain supplies.

Drug Treatment.—The virus of infantile paralysis attacks and attaches itself to the central nervous organs. Hence it is not only reached with difficulty because nature has carefully protected those sensitive organs from injurious materials which may gain access to the blood, but it must also be counteracted by substances and in a manner that will not themselves injure those sensitive parts. The ideal means to accomplish this purpose is through the employment of an immune serum, since serums are among the least injurious therapeutic agents. The only drug which has shown any useful degree of activity is hexamethylenamin, which is itself germicidal, and has the merit of entering the membranes, as well as the substance of the spinal cord or brain in which the virus is deposited. But experiments on monkeys have shown this chemical to be effective only very early in the course of the inoculation and only in a

part of the animals treated. Efforts to modify and improve this drug by chemical means have up to the present been only partially successful. The experiments have not yet reached the point at which the drugs are applicable to the treatment of human cases of infantile paralysis.

PRACTICAL DEDUCTIONS AND APPLICATIONS

1. The chief mode of demonstrated conveyance of the virus is through the agency of human beings. Whether or not still other modes of dissemination exist is unknown. According to our present knowledge, the virus leaves the body in the secretions of the nose and throat and in the discharges from the intestines. The conveyers of the virus include persons ill of infantile paralysis in any of its several forms and irrespective of whether they are paralyzed or not, and such healthy persons who may have become contaminated by attendance on or association with the ill. How numerous the latter class may be is unknown. But all attendants on or associates of the sick are suspect. These healthy carriers rarely themselves fall ill of the disease; they may, however, be the source of infection in others. On the other hand the fact that infantile paralysis is very rarely communicated in general hospitals to other persons, whether doctors, nurses or patients, indicates that its spread is subject to ready control under restricted and supervised sanitary conditions.

2. The chief means by which the secretions of the nose and throat are disseminated is through the act of kissing, spitting, coughing or sneezing. Hence, during the prevalence of an epidemic of infantile paralysis, care should be exercised to restrict the distribution as far as possible through these common means. Habits of self-denial, care, and cleanliness and consideration for the public welfare can be made to go very far in limiting the dangers from these sources.

Moreover, since the disease attacks by preference young children and infants, in whom the secretions from the nose and mouth are wiped away by mother or nurse, the fingers of these persons readily become contaminated. Through attention on other children or the preparation of food which may be contaminated, the virus may thus be conveyed from the sick to the healthy.

The conditions which obtain in a household in which a mother waits on the sick child and attends the other children are directly contrasted with those existing in a well ordered hospital; the one is a menace, the other a protection to the community. Moreover, in homes the practice of carrying small children about and comforting them is the rule, through which not only the hands, but other parts of the body and the clothing of parents may become contaminated.

3. Flies also often collect about the nose and mouth of patients ill

of infantile paralysis and feed on the secretions, and they even gain access to the discharges from the intestines in homes unprotected by screens. This fact relates to the domestic fly, which, becoming grossly contaminated with the virus, may deposit it on the nose and mouth of healthy persons, or on food or eating utensils. To what extent the biting stable fly is to be incriminated as a carrier of infection is doubtful; but we already know enough to wish to exclude from the sick, and hence from menacing the well, all objectionable household insects.

Food exposed to sale may become contaminated by flies or from fingers which have been in contact with secretions containing the virus; hence food should not be exposed in shops, and no person in attendance on a case of infantile paralysis should be permitted to handle food for sale to the general public.

4. Protection to the public can best be secured through the discovery and isolation of those ill of the disease, and the sanitary control of those persons who have associated with the sick and where business calls them away from home. Both these conditions can be secured without too great interference with the comforts and the rights of individuals.

In the first place, where homes are not suited to the care of the ill so that other children in the same or adjacent families are exposed, the parent should consent to removal to hospital in the interest of the sick child itself, as well as in the interest of other children. But this removal or care must include not only the frankly paralyzed cases, but also the other forms of the disease. In the case of doubtful diagnosis, the aid of the laboratory is to be sought, since even in the mildest cases changes will be detected in the cerebrospinal fluid removed by lumbar puncture. If the effort is to be made to control the disease by isolation and segregation of the ill, then these means must be made as inclusive as possible. It is obvious that in certain homes isolation can be carried out as effectively as in hospitals.

But what has been said of the small incidence of cases of the disease among the hospital personnel, and those with whom they come into contact, indicates the extent to which personal care of the body by adults and responsible people can diminish the menace which those accidentally or unavoidably in contact with the ill are to the community. Care exercised not to scatter the secretions of the nose and throat by spitting, coughing and sneezing, the free use of clean handkerchiefs, cleanliness in habits affecting especially the hands and face, changes of clothes, etc., should all act to diminish this danger. But in the end, the early detection and isolation of the cases of infantile paralysis in all of its forms, with the attendant control of the households from which they come, will have to be relied on as the chief measure of staying the progress of the epidemic.

5. The degree of susceptibility of children and other members of the community to infantile paralysis is relatively small and is definitely lower than to such communicable diseases as measles, scarlet fever and diphtheria. This fact in itself constitutes a measure of control; and while it does not justify the abatement of any practicable means which may be employed to limit and suppress the epidemic, it should tend to prevent a state of overanxiety and panic from taking hold of the community.

6. A percentage of persons, children particularly, die during the acute stage of the disease. This percentage varies from five in certain severe epidemics to twenty in others. The average death rate of many epidemics has been below 10 per cent. A reported high death rate may not be actual, but only apparent, since in every instance the death will be recorded, while many patients who recover may not be reported at all to the authorities. In the present instance it is too early in the course of the epidemic to calculate the death rate, which may prove to be considerably lower than it now seems to be.

7. Of those who survive, a part make complete recoveries, in which no crippling whatever remains. This number is greater than is usually supposed, because it includes not only the relatively large number of slight or abortive cases, but also a considerable number of cases in which more or less of paralysis was present at one time. The disappearance of the paralysis may be rapid or gradual—may be complete in a few days or may require several weeks or months.

The remainder, and unfortunately not a small number, suffer some degree of permanent crippling. But even in this class, the extent to which recovery from the paralysis may occur is very great. In many instances the residue of paralysis may be so small as not seriously to hamper the life activities of the individual; in others in whom it is greater, it may be relieved or minimized by suitable orthopedic treatment. But what it is imperative to keep in mind is that the recovery of paralyzed parts and the restoration of lost muscular power and function is a process which extends over a long period of time—that is, over months and even years. So that even a severely paralyzed child who has made little recovery of function by the time the acute stage of the disease is over, may go on gaining for weeks, months and even years, until in the end he has regained a large part of his losses. Fortunately, only a very small number of the attacked are left severely and helplessly crippled. Lamentable as it is that even one should be so affected, it is nevertheless a reassurance to know that so many recover altogether, and that so much of what appears to be permanent paralysis disappears in time.

There exists at present no safe method of preventive inoculation or vaccination, and no practicable method of specific treatment. The pre-

vention of the disease must be accomplished through general sanitary means; recovery from the disease is a spontaneous process which can be greatly assisted by proper medical and surgical care. Infantile paralysis is an infectious disease, due to a definite and specific micro-organism or virus; recovery is accomplished by a process of immunization which takes place during the acute period of the disease. The tendency of the disease is toward recovery, and it is chiefly or only because the paralysis in some instances involves those portions of the brain and spinal cord which control respiration or breathing and the heart action that death results.

Finally, it should be added that not since 1907, at which time the great epidemic of infantile paralysis of poliomyelitis appeared in this country, has the country or this state or city been free of the disease. Each summer since has seen some degree of accession in the number of cases; the rapid rise in the number of cases this year probably exceeds that of any previous year. But it must be remembered that in 1908, several thousand cases occurred in the greater city—possibly indeed many cases of and deaths due to the disease were never reported as such. Hence the present experience, severe and serious as it is, is not something new; the disease has been severely epidemic before and was brought under control. The knowledge regarding it now is far greater than it was in 1908; and the forces of the city which are dealing with the epidemic are probably better organized and in more general coöperation than ever before. The outlook, therefore, should not be regarded as discouraging. —*Journal American Medical Association.*

TREATMENT OF PYORRHOEA FOR THE GENERAL PRACTITIONER*

By O. S. Clappison, D.D.S., L.D.S., Hamilton, Ont.

Whether the title of this paper be "The Treatment of Chronic Alveolar Periostitis," "Chronic Marginal Purulent Periodontitis," "Interstitial Gingivitis," "Periodontoclasia," or "Pyorrhœa Alveolaris," or whether this particular streptococcus, or that equally famous endameba, be the specific cause, is not of overwhelming importance at this moment. Koch formulated certain laws, namely:

1. The specific organism must be associated with the disease.
2. It must be isolated apart from the disease.
3. When introduced into healthy animals it must produce the disease, and in an animal in which the disease has been experimentally produced the organism must be found under original conditions.

*Read before Ontario Dental Society, Toronto, May 8, 9 and 10, 1916.

Until these laws are complied with we have no scientific authority for stating just what the specific micro-organism causing pyorrhœa may be.

We do know, however, that the beginning of pyorrhœa is a gingivitis, the chief feature of *which is traumatism of some sort of the circular ligament.* Constitutionally a lowered *resistance seems necessary to the development of the disease,* and locally the normal attachment is loosened, the soft tissues altered into granulating tissue with more or less pus formation.

CAUSES

Regarding constitutional causes:

It is the opinion of many prominent dentists to-day that there are no systemic reasons for the cause of pyorrhœa other than those which may predispose to any disease. For instance, Hutchinson says:

"If diabetes, syphilis, tuberculosis, or other systemic disorders are coincident with pyorrhœa, the pyorrhœa antedates the constitutional disorder, and has been accentuated but not caused by such disorder, and if the mouth has been under proper prophylactic treatment I believe there would have been no pyorrhœa."

Among the local causes are:

1. Deep interlocking cusps in bridge work.
2. Poorly constructed bridge work.
3. Partial dentures.
4. Ligatures, clamps, wedges, etc.
5. Malocclusion of natural cusps, fillings or crowns.
6. Faulty contact points.
7. Any mechanical irritation lodged under the free margin of the gums.
8. Ragged enamel at the junction of crown and root of teeth.
9. Formation of calculus.
10. Uncleanliness.
11. Bacterial invasion and parasites.

For a differential diagnosis we have to consider:

1. *Loosening of the teeth* from faulty articulation. A large percentage of the pyorrhœa we are called upon to treat arises as a result of this condition.
2. Traumatism. Note all ill-fitting bands, faulty contacts, etc.
3. Senile atrophy.
4. Precocious atrophy.
5. Pus exuding from the gingivæ may be due to—
   (a) Calculus.
   (b) May be due to an alveolar abscess draining at the gingivæ.
   (c) To heavy metals, namely, mercury, lead, etc.

PROGNOSIS

Thanks to the efforts of such men as Gysi, Cummer, Chayes and others the loss of a few teeth does not occasion the anxiety formerly felt.

Modern prosthesis is able to supply efficient artificial substitutes, and in very advanced cases the resorting to prosthesis seems to be the solution of the difficulty and more conducive to the patient's general health. In the majority of cases, however, in which the disease has been correctly diagnosed in its early stages, its etiology plainly recognized, the progress should be favorable, bearing in mind that the X-ray is a valuable adjunct in many cases. The most apparent uses of the radiograph are to show:

1. The amount of bone destruction and absorption around the roots of the affected teeth.
2. The presence of undiscovered blind abscesses which may be discharging at the gingivæ.
3. Absorbed and eroded roots.
4. Excementosis.

TREATMENT

Let us become reconciled to the fact that there is no royal road leading to the cure of this disease, but he who wishes to successfully treat this condition might better place his trust in skilful operating rather than in a hypodermic syringe, tablets, or other remedies.

The only "sure cure" for pyorrhœa is "never to let it begin." Too many nostrums are to be had, and are in use to-day, and sad to relate, too many the composition of which most of the dentists who use them are absolutely ignorant. In many instances more beneficial and lasting results could be obtained by the judicious use of Epsom salts. But let us get away from this word *"cure"* and stop creating a false impression on our patients. Let us be honest in telling them that we do *not cure their pyorrhœa, but that we do offer them relief* from the acute symptoms, and where possible, put their teeth into a comfortable condition, educating them in proper prophylaxis of the mouth, and have them return at stated intervals for similar treatment. It is obvious that by asking them to return for treatments we admit that the condition has not been cured.

As the writer has stated before, it is a lamentable fact that so few patients possess sufficient digital dexterity to properly manipulate a toothbrush, and no time spent by the dentist is productive of greater results than that time devoted to demonstrating to the patient the proper technique of brushing the teeth, and having the patient practice this technique until the results obtained are such as will be productive of a more hygienic mouth, and until the operator is convinced that the patient is securing the best possible results. At each visit the condition is noted, and

attention drawn to surfaces that have not been properly polished, or a *disclosing solution* applied and the patient is shown the condition resulting from neglect to reach every possible angle. It may be necessary to repeat this performance many times, but it must be evident that to a large extent success or failure in this treatment hinges on the ability of the operator to induce the patient to maintain this ideal condition. On the other hand, however, many patients are beyond the persuasive powers of the most convincing practitioner, and it matters not how careful the explanation, or how laborious the demonstration, they either reach home too late at night, rise too early in the morning, or do not go home for lunch. This is the type of patient who goes to Dr. Brown six months after and tells him that although you treated the pyorrhœa for him it is worse now than it ever was.

Finally, brethren, let us keep this old adage ever before us: "An ounce of prevention is worth a pound of cure." Let us drop our policy of "watchful waiting" and get at this problem, each and every one determined that every preventive measure in his or her power shall be used to down this enemy.

DR. CROSS: Gentlemen,—I will detain you a very few minutes in telling you what I know about pyorrhœa. I can tell you all I know about it in five minutes, and probably I know as much as the rest of you do about it.

All that is definitely known about the curing of pyorrhœa could be written on the back of a postage stamp. We don't know enough of the genesis of pyorrhœa; but we know too much of the exodus of the teeth. However, I must compliment the essayist on his very excellent paper. He did not humbug us with a lot of nostrums. Often when we hear papers on pyorrhœa which contain several recipes on its cure, when we come to try them we find them of no avail. I remember a few years ago attending a Canadian dental convention in Montreal, and one of the chief attractions was an expert on pyorrhœa from New York; he gave clinics also. He always had a grand clinic, and he had a most interesting paper and a splendid discussion. He frightened several people, and Dr. Webster knows one man that was badly frightened. He said pyorrhœa was always associated with some grave systemic disorder. Dr. Webster challenged that, and said he knew a man that had it who was as healthy as a young buck. The essayist said no, it was impossible, that there was something that the man didn't know of; and really the next time I saw that man he had lost about twenty-five pounds in weight, and he had to take a trip around the world to recuperate and find out he wasn't as bad as this celebrated New York doctor thought he was. I think

what cured Dr. Webster's friend was the announcement in the paper that this celebrated doctor in pyorrhœa had gone in as a specialist in extraction; he had quit pyorrhœa. That was a natural consequence, I suppose, with any man who had been making a specialty of the treatment of pyorrhœa. Dr. Webster knows I am speaking by the book, and he knows the man and all about it. He knows the man that got frightened and got well again. We have not much pyorrhœa in Ottawa, but we are going to have a lot soon. I will tell you why. Heretofore we have had only one specialist in orthodontia, but we have two new ones now. One, of course, in a city like Ottawa had lots of time, and he moved the teeth gradually and gently, and there was no particular force used, and he got fairly good results, and I am sure he is a good man, but when the race becomes keen, when Billy Brown's teeth are travelling faster than Mary Mulcahy's, there will be trouble. Patients used to ask us what pyorrhœa was, and what was its cause. We didn't know, but we would say it was a local manifestation of a serious systemic or constitutional disorder. Dr. Robinson says if these are gum components of pyorrhœa, coming from pulmonary trouble or any of these other troubles mentioned, and we might find they are local manifestations of these other troubles; but if we only knew the cause of it we might treat it successfully. Coming back to the orthodontia, I really believe that pyorrhœa doesn't start, or shouldn't start, there. Why shouldn't it start in every tooth or every mouth? It nearly always starts on the buccal side or lingual side. I can safely say that, because I know as much as anybody about it. I believe that some undue pressure or some injury of some kind is primarily responsible; something that lowers the resisting power at the point of contact is primarily responsible for pyorrhœa, because all teeth are equally exposed to infection. We know it is an infection of some kind. The essayist has said a very safe thing in saying that a clean tooth will not have pyorrhœa. Well, there is part of the margin that cannot be cleansed with a toothbrush, so while pyorrhœa is more rare with those that indulge in ordinary sanitation, if I may use that term, it is not possible for any one with an ordinary toothbrush to remove any infection from under the gum. Somebody will invent a sort of rotary household toothbrush which, when you start it going, it will cleanse the entire row of teeth. I think that would be a family toothbrush that would pay.

I have no fault to find with the *modus operandi* or manner of treatment. It seems to resolve itself into this: that we can preserve the teeth for a long period of time. It seems to resolve itself into a matter of personal equation when it comes to instrumentation. Some men are very deft with instruments and some not. Even I myself have saved

teeth for many years for those who were wise enough, or foolish enough, to obey me; but if teeth are kept in such a way as to keep the sockets clean and keep the mouth in a hygienic condition, you will not cure the pyorrhœa, but it will be a drawn battle at least, and you can hold it off.

THE PRESIDENT: Is there any other member who wishes to advertise his ignorance on this subject? (Laughter.)

DR. CROSS: If I differ from other advertisers, I hope I was an honest advertiser.—*Dominion Dental Journal.*

LIQUID PETROLATUM

The recent increase in the use of liquid petrolatum as a laxative, together with the fact that water-white oils, intended for internal use, are now being largely manufactured in this country, seems to B. T. Brooks, Pittsburgh (*Journal A. M. A.*, Jan. 1, 1916), to warrant a study of the chemical character, properties, mode of manufacture and testing of oils of this kind. The claim has been largely made that the Russian (Baku) oils consist of naphthene hydrocarbons, whereas American oils consist chiefly of carbons of the methane or paraffin series and have not the same properties and should not be used in place of Russian oils. Although the crude petroleums vary greatly in composition, America has great quantities of oil of the same general character as the Russian oils and what is said of the latter equally applies to the former. He gives the chemical compositions of the hydrocarbons contained in petroleum distillates and says there is great need of the adoption of some proper and uniform nomenclature to designate the viscous, water-white tasteless mineral oils passing under the various names. As has been pointed out by Marcusson, most oils of this class contain no paraffin hydrocarbons whatever, being made up of hydrocarbons of the naphthene and polythene class, and the results reported by Doctor Bastedo are confirmed. Brooks suggests that to avoid confusion these oils should be called "white aphthene oils." The promiscuous sale for internal use of the lighter oils with specific gravity under 0.885 is to be condemned, as trouble due to leakage is more common with them. The most important tests in oils of this class are undoubtedly taste, keeping quality and viscosity, but specific gravity tests may be used instead of the latter as being more readily made. As regards taste, Brooks says masticating the oil with ordinary white bread brings out the petroleum taste and enables one to distinguish between oils nearly identical. The keeping quality can be tested by exposure to daylight.—*The Cleveland Medical Journal.*

AN EPITOME OF CURRENT DENTAL AND MEDICAL LITERATURE

[*Dental Items of Interest*, August, 1916]

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A PLEA FOR THE ELIMINATION OF THE GOLD SHELL CROWN AND SOME CONSIDERATION OF TECHNIQUE IN THE CONSTRUCTION OF THE CAST GOLD INLAY FOR THE ANATOMICAL RESTORATION OF LOST TOOTH STRUCTURE

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GOLD SHELL CROWN SHOULD BE ABANDONED

The use of the cast gold inlay for restorations to the normal of lost tooth structures appears to be such a compromise, and the appeal is here made for its more universal adoption in our daily practice, and the abandonment of the shell crown *absolutely* as an ethical method of operative procedure.

The gold shell crown, it is true, has served us well in the early days of the development of the art of dentistry, and in spite of the ill-repute

into which it has sunk, it must always occupy a sentimental spot in our memory for the pivotal part it has played in the development of the modern era of bridgework. But that is as far as the shell crown should influence our activities in behalf of our clientele.

To some, on first consideration, it might appear that there is less destruction of tooth structure in the technique for a shell crown than in the technique for a cast gold inlay. Yes, indeed, if the shell crown is to be a box with flaring margins, filled with cement, which form shoulders astride the tender mucosa. A tooth so crowned has not been properly denuded of enamel to parallel its walls. What results? An ill-fitting band, setting up first a mild irritation, as would anything foreign which was allowed to pass between the cementum of the tooth and the pericemental tissues; the irritation soon followed by inflammation, and then the long train of symptoms which precede suppuration and exfoliation of the injured member, to say nothing of the systemic disturbances concomitant thereto. A well-fitting shell crown, therefore, means immense destruction of tooth structure, with loss of pulp vitality either as a preliminary step or a pathological aftermath, and an ill-fitting shell crown undermines the supporting structures of the tooth, with symptoms of a localized and constitutional nature which it is hardly necessary in this paper to relate.

The cast gold inlay is not the ideal then in the supreme sense, but it is the nearest approach to that ideal in the present state of the development of the prosthetic chapter of the dental art. It is in this sense that the writer commends the inlay for the more general acceptance by the profession generally, and hopes for the early elimination of the filthy and destructive shell crown in the use of which the dental operator has made a *compromise with the diseased conditions of the human economy to the disadvantage of the patient,* and made himself as one who preys upon the misfortunes of those who have come under his care to his own financial capitalization.

So much then for the nature of our work. Let us consider briefly some of the details of technique for cast gold inlay restorations.

TECHNIQUE FOR CAST GOLD INLAY

The first pre-requisite for well-fitting inlays is a proper cavity preparation. The failure of most inlays is foreordained by poor technique at the chair. The writer believes strongly that such technique can best be acquired by work upon plaster models of large size. The operator should carve the forms of teeth on individual blocks of plaster. This will give him a needed knowledge of the anatomical structure of the tooth, and

assist in a material way when working later upon the natural tooth in the mouth. After the plaster tooth has been carved, the operator should proceed to map out a cavity and prepare it on a large scale, according to approved rules governing such procedure. Beeswax should then be softened and moulded into the cavity thus formed, and trimmed to restore the form of the plaster tooth which has been cut away. In this way, after chilling the wax pattern, one can easily determine whether proper retention has been obtained and learn to correct any steps which may have been faulty. All sorts of cavities should thus be carved, and the operator should make himself so familiar with them that when a case presents in the mouth he will have a picture in his mind's eye of the completed cavity preparation, and every move of his must lead him to his goal—the restoration which will protect the tooth, as well as restore masticating efficiency and normal relationship with its neighbors in the dental arches.

APPROXIMAL CONTACT

The question of contact of the teeth in the dental arch is one that is apparently not well understood by the profession generally. We have heard with frequent emphasis much stress laid upon the "point of contact." The writer has but to quote from a recent utterance of a distinguished member of the profession to verify his statement: "An ideal *contact point* can be secured by flowing on a little solder at the proper place (on the inlay) and rounding it up to a little ball or dome." A statement of such character, made at a National Convention of the dental profession, bears out the writer's belief that the profession at large has only a vague conception of the actual condition existing in the approximal areas of the teeth in the dental arches in their normal relationship to one another. To the writer's mind, it would appear as if we were nearer to a concise description of the condition presenting by terming it "surface contact" of the teeth. This especially refers to the teeth posterior to the cuspid-bicuspid contact, which approximate with their *marginal ridges only*. A few minutes' study with the dental floss ought to convince anyone of the truth of this statement. In order to determine what the normal contact surface between the inlay restoration and the adjoining tooth shall be, the operator must be guided by the degree of contact of two normal teeth, found on passing floss silk interproximally. The tension encountered is the criterion for us to follow.

USE OF MATRIX CONTRA-INDICATED

The use of a matrix for assisting us to take the wax impression is ill-advised, because it is important to obtain an excess of wax all around the margins, and a matrix usually prevents this. Again, the matrix

interferes with our pattern registering the contact surface of the adjacent tooth.

When we have forced the wax into the cavity with our fingers, a wad of cotton dipped in cool water is applied directly thereon, without removing the original pressure upon the wax. This prevents the natural tendency of the resilient wax to recoil from the margins of the cavity when cooled. The wax mass cool, it is removed from the mouth, and with a sharp knife or lancet the overhanging rough portions are trimmed away, and it is reintroduced into the cavity. For trimming and carving the writer has found that the lancet, a small spoon excavator, a stiff explorer point, and an interproximal plastic instrument, are the most convenient and satisfactory. These are to be used *cold* at all times. To obtain the occlusal imprint of the opposing teeth, soften the centre of the wax, being careful not to disturb the marginal portion, and instruct the patient to close the mouth cautiously. A good many operators still persist in having the patient close the teeth on the wax pattern as soon as the wax has been introduced into the cavity before it has been cooled. This method is to be shunned, because it tends to draw the wax away from the margins of the cavity.

A great deal of trouble with the casting of large M. O. D. inlays may be avoided and cervical deficiencies eliminated by placing two sprues into the wax pattern, one at the mesial, the other at the distal marginal ridge. The writer's theory for this technique is that the intervening occlusal area of molten gold is kept cooler than the sprued portions; hence there is not the tendency to contraction at the centre of the cast (occlusally), with a consequent drawing away from the gingival floor of the cavity of the arms of the inlay.

METHOD OF CASTING

As for methods of casting, the writer believes that the profession will soon adopt, to the exclusion of all other methods, the direct pressure method. By this means direct force is brought to bear upon the molten mass in the crucible of the mould, driv ng it swiftly and suddenly into the mould. Pressure shou'd not be too great. That is the fault with the average vacuum casting machine, which gives us a casting with "feathers" all around the margins of the inlay. But in all events, we should see that the gold, before casting is made, is in a very fluid state.

The practice of some operators to leave a surp us of wax extending over the margins of the cavity before removal of the pattern, to allow for closer adaptation by burnishing of the completed inlay, is not a good one, and should be avoided. If the wax pattern is finished true to the cavity bevels there will be no difficulty in reproducing, by proper tech-

nique, a gold casting which will require a minimum of trimming and burnishing in the mouth.

QUOTATION FROM HUNTER

In conclusion, the writer desires to leave the words of Dr. Hunter, of England, with his readers, for them to ponder over, and decide for themselves whether the shell crown of American dentistry should not be completely eliminated from our practice:

"The worst cases of anemia, gastritis, colitis, of obscure fevers of unknown origin, of nervous disturbances of all kinds, ranging from mental depression up to actual lesions of the cord, of chronic rheumatic affections, of kidney disease, are those which owe their origin to or are gravely complicated by the oral sepsis produced in private patients by these gold traps of sepsis. Time and again I have traced the very first onset of the whole trouble of which they complained to a period within a month or two of their insertion. There is no rank of society free from the fatal effects on health of this surgical malpractice. This type of poor dental work conserves the sepsis which it produces by the gold work it places, over and around the teeth, by the satisfaction that it gives the patient, by the pride which the dentist responsible for it feels in his 'high-class American work,' and by his inability or unwillingness to recognize the septic effect which it produces. The medical ill-effects of this septic surgery are to be seen every day in those who are the victims of this gilded dentistry in their dirty-gray, sallow, pale, wax-like complexions, and in the chronic dyspepsia, intestinal disorders, ill-health, anemias and nervous complaints from which they suffer. In no class of patients and in no country are these, in my observation, more common than among Americans and in America, the original home of this class of work."

Such is the arraignment by an international authority of "Septic American Dentistry." What is the general mass of the profession going to do about it?

[*The Practical Dental Journal*, July, 1916]

Original Papers

Emetine Hydrochloride in Pyorrhea Treatment. By Julian Smith, D.D.S.

After-Results of Tonsillectomy—A Study of Five Hundred and Seventy-One Cases. By John C. Simpson, M.D.

A Case of Mercurial Poisoning With Recovery. By Jacob Cohen, M.D., and Adolph Bernhard, B.S.

Purpura Hemorrhagica Treated With Normal Horse Serum. By Lawrence Schlenker, M.D.

Appellate Court Decides Doctor Taggart Cannot Sue the Dentists Collectively.

[*The Dental Cosmos*, August, 1916]

Original Communications

Some Clinical Observations of Regeneration of the Mandible After Caries and Necrosis. By M. H. Cryer, M.D., D.D.S.

The Bodily Movement of Teeth in Orthodontia. By Calvin S. Case, D.D.S., M.D.

An Investigation of Mottled Teeth: An Endemic Developmental Imperfection of the Enamel of the Teeth, Heretofore Unknown in the Literature of Dentistry. (IV.) By Frederick S. McKay, D.D.S., and G. V. Black, M.D., D.D.S., Sc.D., LL.D.

The Dentist Before the Law: Malpractice Actions and Their Prevention by Dental Societies. By Henry Schwamm, D.D.S., LL.B.

Devising and Constructing Splints for Fractured Maxillæ in War Hospitals. By D. O. M. LeCron, D.D.S., M.D.

*Periodontia. By Paul R. Stillman, D.D.S.

The Growth of Orthodontia. By R. Anema, Tm., D.D.S., Ch.D.

President's Address. (Northeastern Dental Association.) By George A. Maxfield.

Diagnosis. By George H. Wright, D.M.D.

Correspondence

Queen Elizabeth's Dental Troubles.

PERIDONTIA

By Paul R. Stillman, D.D.S., New York

SYSTEMIC DISEASES OF DENTAL ORIGIN

Many of the constitutional diseases of obscure or unknown origin that physicians and surgeons have been called upon to treat in the past are now traced to a dental source. It was at first recognized that the infected tonsil and rheumatic disorders had significant connection; later the researcher found that the uric acid diathesis theory had slight scientific basis in fact. Recent work has identified the intimate connection between periodontic infection and such diseases of formerly obscure etiology as rheumatism, myocarditis, arthritis deformans, gastro-intestinal toxemia, certain neuralgias, and many other lesions. Gingival and alveolar infections of numerous forms which have carelessly fallen under the generally accepted term of pyorrhea, and periapical infections, are the two great sources of oral sepsis. The latter, probably, are the most insidious of all oral foci, because the presence of the lesion can only be revealed by the use of the X-ray. Radiographs of these suspected teeth that have given no pain, that are not sore, that have no sinus discharging into the mouth, will reveal infective processes at the root-end, small cavities where the bone structure has been lost, showing a rarefied spot upon the film. These inter-alveolar cavities usually reveal streptococcus viridans in almost pure culture, exactly as has been found on the cardiac

tissue and the synovial membrane. It has also been shown that streptococcus has been found in gastric and duodenal ulcers. That there is a connection in the coincidences has been confirmed by many research workers. We, as dental surgeons, must recognize and assume our share of the responsibility and labor; the physician or general surgeon has neither the training nor the equipment to give relief.

PERIODONTIA DEFINED

This is the day of the specialist, and while we look almost with awe at the wonderful results achieved by men who have given big brains and great energies to the pursuance of some single branch of a science, we must not lose sight of the interdependence of these branches. Periodontia, perhaps the latest arrival among dental specialties, comprises all prophylactic dental procedures, together with the more special surgery of all lesions of periodontic tissues. The field includes the prevention and treatment of pyorrhea and its allied gingival infections, as well as much that is included in minor oral surgery proper, excepting, of course, exodontia and the marked lesions of the osseous structures which require regular hospital facilities with a general anesthetic. The treatment of root canals for the relief of infections of the apical area, apioectomy, and all minor oral surgery, reasonably falls under this heading, as does applied dental radiography—or, as Raper calls it, radiodontia.

It is not my purpose to assist in the erroneous movement of divorcing periodontia from general dentistry, for I believe that periodontology is the keystone of the arch of all other dental branches; neither do I wish to include it in the broader field of the healing art of medicine, and thus to hope for any other relation to medicine than that in which it now stands. The foundations of our structure are laid deeply in the necessities of suffering humanity, but the prevention and eradication of disease should, after all, have priority of place in all dental procedure.

THE NEED OF PROPHYLAXIS

In these more scientific days, our sister profession of medicine is continually asking the coöperation of dentistry in the work of eliminating disease; first, by discarding such methods of our procedure as are known to be the cause of systemic infection, and second, by incorporating in our work such measures as will prevent the development or spread of disease. That disease does arise from within the mouth is no longer a disputable assertion; that dentistry of a certain type has been the direct cause of systemic disease is also true. Aside from those *general* infections that demand hygiene within the oral cavity, there is a considerable number of diseases which come more particularly within the professional scope of

dentistry than of medicine, and the opportunity for work in this field is under the hand of every dentist. While it is true that 75 per cent. of the cases which come to those of us who are making periodontic work our special field of labor are or may be classed as pyorrhea, it is also true that the immense amount of work in the way of preventing *all* the diseases to which the peridental membrane and its allied structures are susceptible must inevitably fall under the scope of the general practitioner. In other words, it is the plain, garden variety of dentist—the all-around thorough practitioner, and not the specialist—who must undertake the work of prevention of disease if any great impression is to be made upon the vast problem of oral prophylaxis that awaits practical solution.

If each patient desiring dental service, whether for the relief of immediate pain or the restoration of some tissue that has been lost through disease, should receive at the hands of his dentist proper prophylactic treatment, who can compute the resultant alleviation of suffering to mankind? The initial gingival infection is the forerunner of most of the destructive processes that result in the final exfoliation of the teeth.

The whole alimentary tract, including the human mouth, is a veritable incubator for the propagation of germ life. Débris, lying in contiguous relation to tooth and gum, finds in the gingival trough a place of lodgment. The infection of this débris soon destroys the epithelial layer of the mucosa lying next to the tooth, opening a way for the passage of bacteria into the vessels, and thence into the blood stream. It is here that we may observe a focus of infection.

VITAL RESISTANCE

The human body is almost impregnable to invasion of its vascular structures just so long as its integument is intact and it has a normal power of resistance. It is, under certain conditions, so greatly lowered in its powers of resistance as to succumb to a violent attack. The epithelium lying against the tooth-root on the inverted gingival border has cells of smaller size and of lower life potentiality than does the outer layer toward the lips and cheek. Every epithelial cell possesses a high capacity for regenerative construction, but when we remember that the nutrition to this part is supplied by vessels of extreme diminution—or, as Talbot characterizes them, end organs; that their flow is always interrupted by embolic masses whenever they are invaded by bacteria, thus shutting off the nutritive element, and that the tissue is undergoing desquamation due to the presence of infective débris, we realize that its tendency to rebuild seldom can overpower the retrograde processes of attack unaided by intelligent conservative prophylactic interference on the part of the dentist.

It is an accepted theory of pathology that the mucous membrane is a natural protection against infection, that the mucous secretion itself has an inhibitory influence on bacteria, and that, where the conditions are normal and the resistance high, the chances of infection are not great, but with the lowering of vitality—that element in combative defense whose function is yet to be fully understood—we observe a concomitant withdrawal of the element opposed to invasion. We observe this in case of exposure, followed by a general pneumococcus infection, as we also do in grippe, colds, and many other conditions which have their foci in the nose or mouth.

[*The Dental Review*, August, 1916]

Original Communications

Our Present Cements with Special Reference to Those Containing Copper. By Marcus L. Ward.
Report on Dental Science and Literature. By P. G. Puterbaugh.
Report of the Committee on Legislation. By C. R. E. Koch.
Report of the Committee on Necrology. By C. M. Cahill.
Copper Cement. By Francis E. Burnett.

Editorial

Boil It Down.

[*The Dental Summary*, August, 1916]

Regular Contributions

Chronic Oral Infections with Suggestions for the Management of Cases. By Arthur D. Black.
Amalgam Restorations. By J. A. Dinwiddie.
Reflex Disturbances in Relation to Dentition. By Edward C. Kirk.
The Therapeutic Efficiency of Oral Preparations. By Herman N. Prinz.
Articulation of Teeth. By Loomis P. Haskell.
Pyorrhea Alveolaris from a Medical Viewpoint. By J. H. J. Upham.
Roots and Their Treatment. By Walter F. Provan.
Render Unto Caesar. By S. N. Young.
A Quick Method of Making Shell Crown. By L. E. Trinkle.
Restorations by the Amalgam Model Method. By Ralph Miller.
The Eradication of Pyorrhea by Prophylactic Measures. By George S. Hershey.
The Dentists' Mutual Protective Alliance in Ohio. By Guy B. Webster.

Editorial

A Coöperative Help Bureau.

[*Oral Health*, August, 1916]

Photograph, Ross Thomas, D.D.S., London, Ont. Frontispiece.

The Value of Oral Hygiene Lectures to the Public and the Responsibility of the Dental Profession in Relation to This Work. By Thaddeus P. Hyatt, D.D.S., New York City.
Preventive Dentistry. By Russell W. Bunting, D.D.Sc., Ann Arbor, Mich.
Horticulture For the City Dentist. By Fred G. Brethour, D.D.S., Toronto.
Technique of Root Canal Filling. Department of Operative Dentistry, Royal College of Dental Surgeons.
Our Buffalo Letter. By Habec.
The Compendium.
Multum in Parvo.
Active Service Roll.
A "Seasonable" Letter From One of the Editorial Staff.

[*The Dental Outlook*, August, 1916]

Original Communications

The Efficiency of the Dentist as Affected by Weak Feet. By S. W. Boorstein, M.D.
Teething as a Diagnosis for Many Ills. By J. Epstein, M.D.
The Dental Hygienist. By S. Herder, D.D.S.
The New York Training School for Dental Hygienists.
One More Word on Pyorrhea. By C. P. Abbey.

Editorial

Root-Canal Work and the New Dental Law.
Book Review.
Letter to the Editor.

[*The International Journal of Orthodontia*, August, 1916]

Face Facts. By B. E. Lischer, D.M.D., St. Louis.
Modern Office Appointment for the Orthodontist. By R. C. Willett, D.M.D., Peoria, Ill.
The History of Orthodontia. By B. W. Weinberger, D.D.S., New York City.

A Comparative Study of the Attachment of the Teeth of Lower Animals. By E. H. Skinner, M.D., and Martin Dewey, D.D.S., Kansas City, Mo.
A Symposium on Dental Radiographic Technic. By Floyd D. Leach, D.D.S., Chicago.
Report of a Case of Chronic Suppuration of the Antrum—in Which the Radiographic Examination was Indispensable. By John Mackenzie Brown, M.D., Los Angeles, Cal.

[*The Medical Economist*, July, 1916]

THE DETROIT SESSION OF THE A. M. A.

The king is dead! Long live the king!

Rarely, however, is the proclamation of the succession to power published abroad before the demise of the incumbent or the selection of his successor. It was a "faux pas" of this character during the sixty-seventh annual meeting of the A. M. A. that led to the following occurrence:

Dr. F. C. Warnshuiss, of Grand Rapids, Mich., asked the privilege of the floor. He said the Wayne County Medical Society and the pro-

fession of Detroit had labored long and earnestly to provide for the comfort and pleasure of the association here meeting. It was with sorrow and regret to them that an incident had occurred to mar their work. In the noon edition of one of the papers appeared the announcement that Dr. Charles H. Mayo would be elected president of the American Medical Association. He then read a letter from the city editor of the paper in question to the effect that the news had been gathered by a reporter in the course of his routine duties and did not emanate from a member of the association.

Next in importance to this event was the complete subordination or subjugation of the "Individualism" long prominent in the A. M. A. to the new spirit of communal medical service under corporation, municipal, State or government control. Since the last meeting of the A. M. A. the Drs. Mayo have merged their own identity in this way by attaching the medical plant of the State of Minnesota to their famous institution at Rochester, Minn. As leaders in medical "modes" for a long period, this action on their part may be sufficient to account for this revolution in medical sentiment. All the proceedings of the A. M. A. so far as reported reflect this spirit.

Dr. Rupert Blue, the present president, Surgeon General U. S. Health Service, in his address urged that because of its success in excluding contagion from our shores, the scope of this organization should be extended to a supervision over all defects and disorders of health indigenous to the soil. No measure of praise is too great for our quarantine service, but keeping out cholera, yellow fever, bubonic plague and other scourges should not be mentioned in the same breath with such sociological medical duties as those showing 98 per cent. of garment workers to be diseased and which were used by partisans in a labor controversy in this city.

Dr. Charles H. Mayo, president-elect of the A. M. A., in his address spoke in much the same vein when he said: "We have nearly put disease under our feet. All that is necessary for the public health of a community now is for that community to be intelligent enough to demand of the government that all of the discoveries of medical science be put to work in behalf of the community.

"Business interests get four times as much from the government for care and protection of hogs and cattle as the Public Health Service gets for the care of human health. We should have skilled men at work everywhere and each worker should receive a salary equal to the economic value of just one human life. That is only $5,000."

It is to be regretted that the president of the A. M. A., with a nation-wide audience, should have revamped this ancient gag of "the hogs and the public health." Originally this parable applied to the difference be-

tween what the government did for our "hogs" and our "babies." The answer, which is rarely, if ever, given, is that when babies are bred and brought up like hogs they will then demand equal attention and consideration from the government. This will be when the government becomes an overparent as prophesied by Judge Ben Lindsey.

On a subject rarely treated in a medical convention Dr. Mayo was inclined to be pessimistic. The blending of the "humanities" with a purely medical enterprise in the new union of the State university and the Mayo Hospital may account for this deliverance:

"Dr. Charles Mayo, the president-elect of the American Medical Association, thinks that the Slavs are to be the dominant race of the future. He will find many Russians, and doubtless not a few Austrians at the present time, who will agree with him. Dr. Mayo expects the Russians to surpass the Americans, and his reason for predicting that our nation will take second place is our alleged commercialism, which, the great surgeon says, leads the American people to sacrifice health and racial development to the idols of commercial success. While most of us are less pessimistic about the future of our country than Dr. Mayo is, we find nothing new in this indictment of America. Most people who think have long been aware of the evils wrought by our national commercial spirit."

Using the word in its best non-commercial sense, the Mayos are the best advertised doctors in the world. Doctors as a class cannot be accused of the sin of "commercialism" in their dealings of a professional character with their fellow men. If this element has been introduced into medicine, it is owing to the great specialists and the great medical celebrities. These, with their worldwide reputations, have found it necessary to organize on a business basis both the character of the professional work and the pecuniary reward attaching to it.

Five thousand dollars a year for a life saved in public service work is vastly greater than the annual reward of the great body of private practitioners with no limit to their number of human lives saved annually. "All that a man hath he will give for his life,' says the Good Book. A tithe at least he may give to the great ones of the profession when he is properly acquainted with the magnitude of their service. The ordinary fee is the reward in all cases of the ordinary practitioner. It would be hard to find this "honorarium" tainted with "commercialism."

BOOK REVIEWS

THE INTERNAL ANATOMY OF THE FACE. By M. H. CRYER, D.D.S., Professor of Oral Surgery, University of Pennsylvania; Oral Surgeon to the Philadelphia General Hospital; Second Edition, Revised and Enlarged. Octavo 360 pages with 377 engravings. Cloth, $4.50 net. Lea and Febiger, Publishers, Philadelphia and New York, 1916.

The above is the second edition of this valuable book, upon which Dr. Cryer has spent many years of unremitting study on the subject of the anatomy of the head and face. The illustrations in this edition are unusually good, especially the X-ray reproductions.

In Chapter VI—Teeth Influenced by Irregular Eruption—Dr. Cryer has probably done some of his best work. There are many illustrations in this chapter, showing retarded and impacted teeth, supernumerary teeth, deciduous second molars, etc.

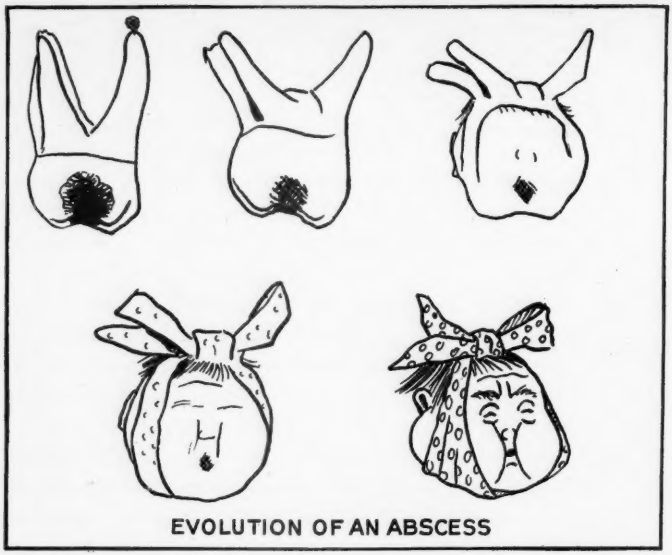
The text of this edition has been carefully revised, and 180 pages of new matter added—including chapters on the teeth with their nerve and blood supply; on the distribution of the trigeminal nerve; on the uses of frozen sections; also on the inter-relations between the nasal cavity and its accessory sinuses.

We heartily commend this volume to the profession and compliment both author and publisher for producing such a valuable work.

CARE OF THE MOUTH AND TEETH. A Primer of Oral Hygiene. BY JOSEPH HERBERT KAUFFMANN, D.D.S., Attending Dental Surgeon of the Bronx Hospital Dispensary and Assistant Dental Clinician to the Vanderbilt Clinic, New York City, New York. Rebman Company, New York, Publishers.

In the preparation of this book Dr. Kauffmann has evidently spent considerable time, though he states in his preface that he "aims at nothing else than the grasping of the fundamental idea of the value of oral hygiene." This is no small task, and we think the author has handled the subject very intelligently, spending little unnecessary time over the scientific matters. He writes positively in regard to general disease resulting from a primary dental source of infection, warmly recommending the importance of professional coöperation.

We extend our congratulations to the author for producing an interesting and useful little book and to the publishers for presenting it in such an attractive setting.



By P. H. Eggena, D.D.S., Lester Prairie, Minn.

FUTURE EVENTS

September 13–15, 1916.—The next regular biennial meeting of the Canadian Dental Association will be held in Montreal.—L. A. STEVENS, 154 Metcalfe St. Montreal, Can., *Secretary*.

September 28–30, 1916.—The Maine Board of Dental Examiners, State House, Augusta, Me.—HAROLD L. EMMONS, Masonic Bldg., Laco, Me., *Secretary*.

October 4–6, 1916.—Virginia State Dental Association, Richmond, Va.—J. M. HUGHES, Richmond, Va., Chairman of Clinics; J. A. HOGGAN, Richmond, Va., Chairman Exhibit Committee, and C. B. GIFFORD, Norfolk, Va., *Corresponding Secretary*.

October 9–11, 1916.—Missouri State Board of Dental Examiners, Jefferson City.—V. R. MCCUE, Cameron, Mo., *Secretary*.

October 9–15, 1916.—Arizona Board of Dental Examiners, Phœnix, Ariz.—EUGENE MCGUIRE, 302 Noll Bldg., Phœnix, *Secretary*.

October 12–13, 1916.—Northern Indiana Dental Society, Twenty-eighth Annual Meeting, Kokomo, Ind.—CHARLES A. PRIEST, *Secretary*.

November 16–18, 1916.—St. Louis Dental Society, Planters Hotel, St. Louis, Mo.—CLARENCE O. SIMPSON, Century Bldg., St. Louis, *Secretary*.

December 5–7, 1916.—Ohio State Dental Society, Dayton, O.

January 23–25, 1917.—American Institute of Dental Teachers, Philadelphia, Pa.—ABRAM HOFFMAN, 529 Franklin St., Buffalo, N. Y., *Secretary-Treasurer*.